Review of 1960 Sales--Forecast for Coming Year . . *Pp. 1 & 17*

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See Probable 'Conservative' Gains In '61

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Flash: 'Hotter' N. Y. Weather Assured In '61

NEW YORK CITY—A hotter summer for New Yorkers is confidently predicted by the U. S. Weather Bureau here. And meteorology has nothing to do with it.

On Dec. 29, the bureau moved its offices from Battery Place at the lower tip of Manhattan to Rockefeller Plaza in midtown. As of that date it began taking temperature readings from the top of Belvedere Tower in the middle of Central Park.

Since the tower is only 80 ft high as compared with the breezy rooftop of 17 Battery Place, 454 ft up, future temperature readings in summer are bound to be warmer, the Weather Bureau pointed out.

Lennox Bows Roof Top Heating, Cooling Unit

NEW YORK CITY—A new roof top heating and cooling unit developed from two Lennox "Landmark" units combined into one flexible package was exhibited by Lennox Industries, Inc. at the Industrial Building Exposition held here recently.

Available in 7½ and 10 tons of cooling with heating outputs from 163,000 to 272,000 Btuh, the new unit can be controlled by one heating-cooling thermostat, the company said.

Or, the unit can be applied to two zones each controlled by a separate thermostat. Automatically controlled outside air, up to 100%, is available for ventilation or "free" cooling.

A Z-bar base frame fits into

(Continued on Page 13, Col. 4)

Cooling Industry Shows Concrete Gains, Says ARI

WASHINGTON, D. C. — "A year ago the air conditioning industry reported that 1959 had been the 'best year in its relatively short history,' that it looked ahead to a 1960 which would break all records for the development, production, and use of the equipment which it produces. Today, after a year in which business activity generally has been reported as 'spongy,' our industry can look back on 1960 as a year in which it has not only held its own, but has shown concrete gain in most areas—and still looks ahead to the greatest decade in history." So stated

(Continued on Back Page, Col. 1)

Coolerator Series Offers Lectrofilter

ALBION, Mich.—A new line of 1961 Coolerator "Custom" series room air conditioners featuring the "Lectrofilter" electrostatic air purifier at prices competitive with air conditioners without such a feature were introduced recently by Albion Div., McGraw-Edison Co.

The Lectrofilter is claimed to remove almost all airborne dust,

(Continued on Page 4, Col. 1)

Export Sales Lead Way for Industry

WASHINGTON, D. C. — Although final U. S. Department of Commerce figures covering 1960 exports of U. S.-made air conditioning and refrigeration products are not available yet, all trends indicate that the growth rate of the industry's exports will have increased substantially more than that for many other products, states N. A. Gardner, manager, air conditioning products, international operations, Worthington

(Continued on Page 17, Col. 3)

'Dare To Be Different,' CRMA Advised

CHICAGO—"Dare to be different!" is the most sensible solution to the increasing problem of lagging profits, members of the Commercial Refrigerator Manufacturers Association were told at their new-year forecast meeting here last month by a panel of members who had been asked to take inventory of the industry's problems and to suggest workable solutions.

(Continued on Page 4, Col. 5)

Inside Dope

By GEORGE F. TAUBENECK

Learn to live and laugh — thus delay your epitaph

Foreign Competition Is Good for Us!

If the United States pursues sound economic policies at home, the industrial resurgence of other nations will be beneficial to the American economy in the long run.

Foreign competition can produce the same helpful effects that domestic competition affords, according to the Economic Advisory Committee of the National Association of Manufacturers—which is composed of a cross-section of businessmen from various sections of the country.

Foreign competition tends to impress upon our whole economy the same let's-do-better attitude which internal competition imposes on individual firms within an industry.

We can profit by such discipline, provided we understand the lessons it can teach us, and have the courage to act on them. Without such understanding and courage, foreign competition will be merely bothersome and annoying.

According to the NAM study, foreign competition should be regarded as a challenge, rather than a disaster—a challenge to "show the good sense to do the things we ought to be doing anyway." These good-sense "do's" would include:

Removing tax barriers to capital formation; authorizing sound depreciation policies; curbing the monopolistic powers of labor unions; and, in general, providing the kind of economic climate which is helpful to business growth and individual freedom.

"There is no sacrifice involved in doing these things," the study perorates. "They will strengthen our economy and raise our standard of living.

(Continued on Page 6, Col. 1)

Most Industry Segments Given Chance To Better 1960 Sales

SALES OVER-ALL OF AIR CONDITIONING, HEATING, AND REFRIGERATION PRODUCTS IN 1960 FAILED TO COME UP TO EXPECTATIONS. HOWEVER, SALES OF THESE PRODUCTS WERE GENERALLY BETTER THAN THOSE OF MANY OTHER SEGMENTS OF AMERICAN BUSINESS, PARTICULARLY IN THE DURABLE GOODS FIELD. IN SOME SEGMENTS OF THE INDUSTRY, GAINS WERE REPORTED. FOR 1961, PREDICTIONS ARE ON THE CAUTIOUS SIDE, BUT MOST AUTHORITIES HOLD A SINCERE BELIEF THAT A 10 TO 15% INCREASE OVER THE PAST YEAR CAN BE ACHIEVED.

The above, in brief, is a fair statement of the industry's performance in 1960, and the probable course of sales in 1961, on the basis of information presently available to the editors. With further reference to the industry's course in 1961, the following quotation, made by the head of a top-ranking air conditioning manufacturer, is a reflection of the caution with which industry leaders view the coming year—

"Over-all operations will depend largely upon the course taken by the national economy in the months immediately ahead—a subject on which experts are not generally agreed at this time."

However, in the following quick summation of estimated 1960 sales in various categories of industry products together with a consensus of predictions for 1961, there are many optimistic notes to be found:

PRODUCT	1960 Sales	Prediction for 1961
Central Residential Air Conditioners	215,000 Units	250,000 Units
Commercial Package Air Conditioners	110,000 Units	120,000 Units
Room Air Conditioners	1,250,000 Units	1,500,000 Units
Big Air Conditioning Systems (Engineered)	$800 Million	$875 Million
Auto Air Conditioners	615,000 Units	725,000 Units
Home Heating Systems	1,286,000 Units	1,400,000 Units
Commercial Refrigerators	160,000 Units	175,000 Units
Exports of Industry Products	Increase—28%	Increase—30%

(The commercial refrigerator category includes only factory-built food store and food service equipment. Other types are discussed in the following story.)

UNITARY Air Conditioner Sales Gains Seen Most Likely

RESIDENTIAL: Sales of central, year-round residential air conditioners apparently turned in a better performance than most other categories. A number of manufacturers have publicly reported modest sales increases of such units. Thus it seems probable that sales of central residential systems in 1960 were close to the 215,000 unit mark.

A number of sales executives active in the field have expressed the belief that central residential system sales could increase by 20% in 1961. This would put total sales for the year 1961 beyond the 250,000 unit total. This is still well behind some of the predictions for 1961 made some years ago, but at the same time, a figure which if reached will not represent any setback for the industry.

COMMERCIAL AIR CONDITIONERS: Any consideration of this category must give weight to the fact that where once all units of this type were vertical-style pack-

(Continued on Page 17, Col. 1)

U.S. Court Overrules NLRB, Upholds Lewin-Mathes' Right To Assign Work

CHICAGO — The National Labor Relations Board was reversed by the U. S. Court of Appeals for the Seventh Circuit in the case of NLRB vs Lewin-Mathes Co., division of Cerro de Pasco Corp., the latter firm has reported.

The board last March had found that the company had refused to bargain in good faith in insisting during negotiations in 1958 on the absolute right to assign work. It also ordered the company to rehire union members who were replaced when they engaged in a strike to force the company to the union demands.

The U. S. Court of Appeals found, the company said, that the evidence in the record did not support the NLRB's findings and order. It found that the company had bargained in good faith, that the strike was an economic strike, and that the strikers were not entitled to reinstatement. It denied enforcement of the NLRB's order.

The court said: "The difficulty in the way of reaching an agreement between the parties was the insistence on the one hand of the union to fill jurisdiction and seniority rights within its unit and and the insistence of the company on the other of management rights with respect to assignment of work and, later, after the strike began, its right to protect the replacements who had been hired during the strike by giving them the seniority and assurances which had been promised to them before they undertook to replace the strikers.

"It seems to us in the instant case that the board appraised the employer's bargaining position with respect to major issues as a means of ascertaining its good faith. It also passed judgment on the reasonableness of the proposals in reaching its finding of bad faith.

"In effect the board's appraisal is to apply pressure upon the employer to make concessions in negotiations. The board may not either directly or indirectly compel concessions or otherwise sit in judgment upon the substantive terms of collective bargaining agreements."

The court went on to say: "These are matters for management and labor to resolve if they can at the bargaining table. If they cannot there be decided then neither the board nor court can compel an agreement or require a concession."

The court pointed out: "For the board to intervene in conflicts between management and labor concerning their respective functions and responsibility would involve it in highly emotional controversies and in the end would result in compulsory arbitration."

It said that it was apparent to it that the company all through the negotiations negotiated in good faith.

"It is not an unfair labor practice for an employer to bargain in good faith for an agreement assigning particular subjects of collective bargaining to management's exclusive control for duration of contract."

It found that the strikers were not unfair labor practice strikers but were economic strikers in which case it was lawful and proper to grant super-seniority to replacements.

Company attorneys advised that the position of the court was consistent with the holdings in other U. S. Courts of Appeals. They said that similar findings had been made in the U. S. Courts of Appeals for the 5th, 6th, and 8th Circuits and that the present decision by the U. S. Court of Appeals for the 7th Circuit was a further vindication of management's right to bargain to retain for itself its management prerogatives.

Three Get Mueller President's Award

MILWAUKEE—C. Les Newhart, Sarasota, Fla.; Lawrence J. Studnicky, Jr., Merchantville, N. J.; and Robert L. Young, Los Angeles, have received the President's Award from H. P. Mueller, Jr., president of Mueller Climatrol.

The awards are presented each year to the three outstanding Mueller Climatrol sales representatives. The presentations were made at the Schroeder hotel here.

National Refrigeration Mfg. Co. Sold to BSF for About $1 Million

NEW YORK CITY — Purchase of National Refrigeration Mfg. Co., Los Angeles, by BSF Co., a holding company, for about $1 million, was announced by Arthur Brown, BSF executive vice president.

National Refrigeration makes and services refrigeration equipment for supermarkets. According to Brown, BSF was particularly interested in the company's service organization. National Refrigeration's sales total more than $4 million annually, he noted.

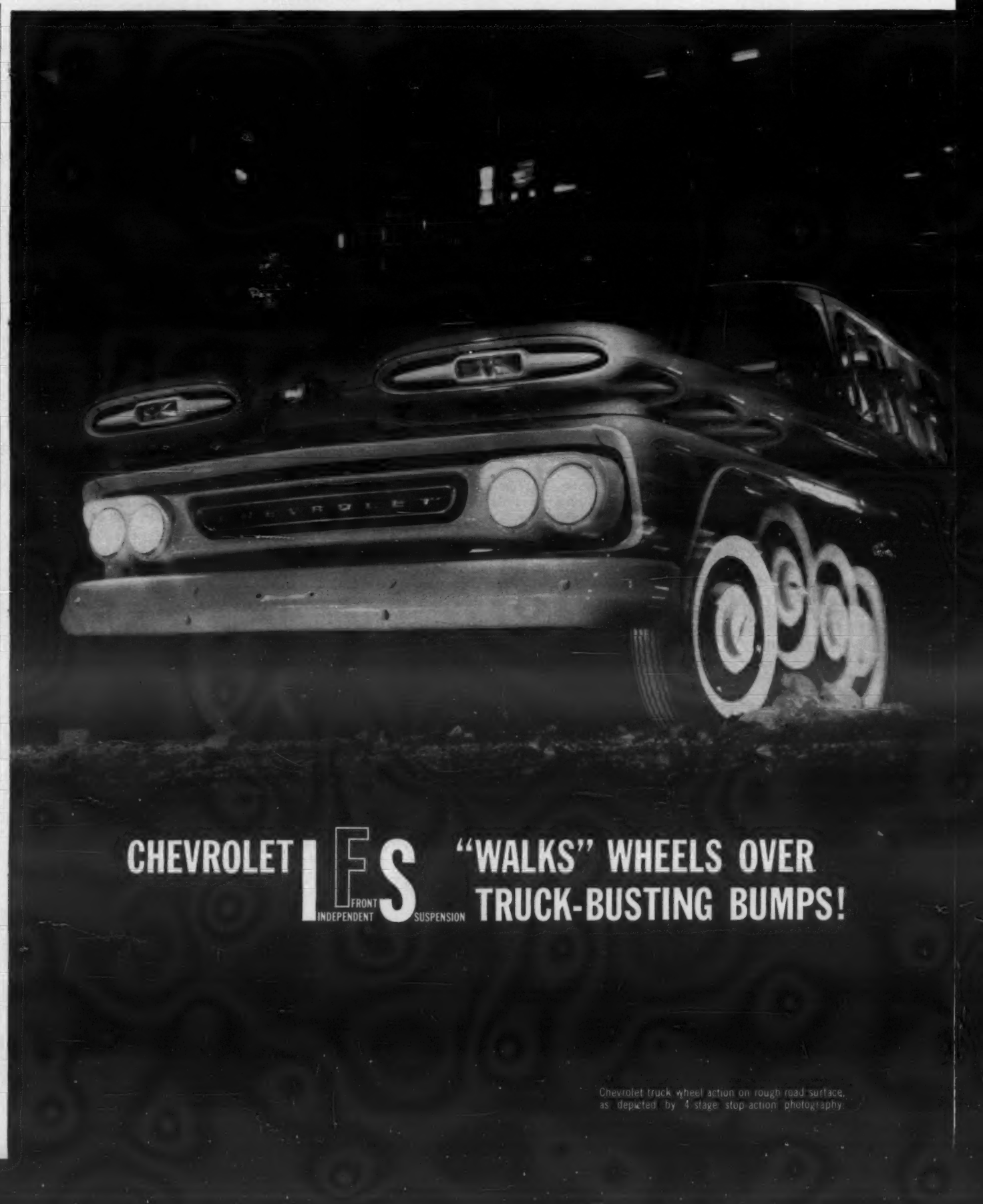
Brown said the $1 million will be paid half in cash and half in notes against future earnings of the company. He added that Charles Walling, who was National Refrigeration's principal stockholder, will remain active in the firm.

BSF, it was reported, indirectly controls C. V. Hill & Co., Inc., a subsidiary of Savage Arms Corp. Hill manufactures commercial refrigeration equipment.

Controls Co. Names Huber to Sales Post

SCHILLER PARK, Ill.—John Huber has been appointed assistant director of sales for the Heating & Air Conditioning Div. of Controls Co. of America, Milwaukee, according to A. L. Topp, director of sales.

Succeeding Huber in this capacity is Perry Cremeens.


CHEVROLET IFS FRONT INDEPENDENT SUSPENSION "WALKS" WHEELS OVER TRUCK-BUSTING BUMPS!
Chevrolet truck wheel action on rough road surface, as depicted by 4-stage stop-action photography.

A. J. Industries To Buy Roberts-Gordon Of Buffalo for Estimated $1.2 Million

LOS ANGELES—A. J. Industries will acquire Roberts-Gordon Appliance Corp. of Buffalo, and Grimsby, Ont., Can., A. J. President C. J. Ver Halen, Jr., announced recently. The acquisition was expected to be effective by Dec. 31, 1960.

"The purchase price is approximately $1,200,000," the announcement said. "Payment will be made in A. J. common stock at intervals over a period of three years based upon the then current market price of A. J. stock.

"Roberts-Gordon manufactures gas furnaces and gas water heating equipment for residential and industrial markets. A major segment of the company's business is in the conversion of home oil burners to gas, it was explained.

"A rising level of sales is anticipated as use of natural gas for home heating accelerates in the Northeast and Canada. Sales will amount to $2,700,000 in 1960 and are expected to exceed $3,000,000 in the coming year. The company occupies in excess of 100,000 sq ft of manufacturing space at its two plants."

Ver Halen stated that the acquisition of Roberts-Gordon marks the entrance of A. J. Industries into the Canadian markets. "In our planning," he said, "we foresee the expansion of our Canadian facilities to permit the manufacture and sale of products from other company divisions."

With the acquisition of Roberts-Gordon, A. J. will have eight divisions engaged in aluminum fabrication, residential and commercial real estate development, mining, and the manufacture of a broad range of products for military, industrial, residential, and commercial markets.

A. J.'s sales in the fiscal year ending March 31, 1961, should approximate $22,000,000 compared with $14,422,723 in the preceding fiscal year, Ver Halen said.

NWAHACA Picks '61 Site

CLEVELAND—The 48th annual convention of the National Warm Air Heating & Air Conditioning Association will be held in Chicago during the week of Nov. 6, 1961.

According to James M. Martin, managing director, the meetings will be held at the La Salle hotel.

Carrier Pilot Plant Converts Sea Water to Fresh by Freezing

WRIGHTSVILLE BEACH, N. C.—What is said to be the world's first large capacity pilot plant for conversion of sea water to fresh by freezing has been placed in operation at this seaside location, it was announced by Carrier Corp.

The U. S. Secretary of Interior has designated freezing as the conversion method to be used in a demonstration plant of 150,000 to 350,000 gallons a day capacity to be erected on the East Coast. The Carrier freezing process is currently in the most advanced stage of development, according to Dr. A. L. Miller, director of the Office of Saline Water.

Dr. J. F. Downie Smith, Carrier vice president, said the Wrightsville equipment has been in operation in shakedown tests for the past six weeks to determine the most efficient operating procedures.

A period of continuous, around-the-clock operation will begin soon to develop the data needed for design and construction of much larger conversion plants using this process. Carrier developed the process and built the 15,000 gallon-a-day plant under a series of contracts from the U. S. Dept. of Interior's Office of Saline Water.

The present pilot plant first began operating in October, 1959, at Carrier's Syracuse, N. Y. headquarters. After testing on synthetic sea water, it was disassembled, modified in the light of the initial test results, which revealed possibilities for lowering cost, and then re-erected at Wrightsville Beach for use with actual sea water.

Dr. Miller pointed out that the Carrier process has moved from its initial research phase in only four years. The first contract from the Office of Saline Water was received by Carrier in 1956.

A laboratory glassware plant was built to test the method the company had been developing. Carrier then built and operated a 300-gallon-a-day pilot plant, prior to designing the present plant which is 3½ stories high.

"WALKING WHEELS" KEEP CHEVY IN COST-SAVING SHAPE!

CHEVROLET I.F.S. FRONT INDEPENDENT SUSPENSION PROTECTS YOUR PROFITS THESE THREE WAYS:

1 *Rides down high maintenance costs.* When a bump looms up, Chevy's independently suspended front wheels "walk" right over it. Most road shocks and jolts never reach the chassis, cab or body. The truck rides *smoothly*, takes less of a beating, stays in cost-saving shape longer. Your income doesn't dribble away in big repair bills. And you don't lose money through excessive downtime, either.

2 *Rides cargoes over rough spots with less damage . . . minimum loss.* Thanks to those same "walking wheels," loads don't do much bouncing in the body of a '61 Chevy truck. That means you don't have to contend with undue cargo damage that eats away at your earnings. (Chevy's load-tailored *rear* suspension helps protect cargoes, too.) This sure protection for fragile loads—and profits—is standard in 1961 Chevrolet trucks of every weight class.

3 *Rides drivers through with less fatigue—for tighter schedules.* Wait till you see how Chevy front wheel action works to eliminate tiring shimmy and steering-wheel fight. It means that the man at the controls can stay there longer with less fatigue—stay on schedule and do a bigger day's work. (Another reason you can look for faster schedules is that Chevy's bump-beating wheel action allows faster safe speeds on rough roads.)

That gives you an idea of how Chevy Independent Front Suspension works to move you ahead in the money-making department. And it's available in 165 Chevrolet models for '61, from new Corvair 95's to 36,000-lb. GVW tandems. Check it out with a demonstration ride at your Chevrolet dealer's, sometime soon. . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

INDEPENDENT FRONT SUSPENSION

In Chevy, each front wheel, suspended independently, is free to step cleanly over bumps (see left). Each works smoothly to reduce objectionable jolts so characteristic with I-beam axle design (right). Working with load-tailored rear suspensions in every weight class, I.F.S. provides the basis for profit-protecting performance that's unmatched by I-beam axle trucks.

I-BEAM AXLE DESIGN

1961 CHEVROLET STURDI-BILT TRUCKS CHEVROLET

Swartwout To Operate April Showers As Div.

KOKOMO, Ind. — Swartwout Fabricators, Inc., manufacturer of ventilating and fire relief equipment for industrial and commercial buildings, has acquired April Showers, Inc., producer of roof sprinkler cooling systems.

Acquired from Leonard Holder, inventor of the system and president of the former company, April Showers will operate as a division of Swartwout Fabricators, it was stated. Manufacturing and engineering for both domestic and foreign sales will be done in Swartwout's Kokomo plant.

G. V. Patterson, Swartwout president, said the April Showers cooling system has proven successful in preventing solar heat from penetrating through the roof to people and materials below. It can be used by itself or in conjunction with ventilating and air conditioning systems where it materially reduces both initial equipment investments and operating costs, he added.

New Navy Hospital All Air Conditioned

CHICAGO—The Navy's newest hospital, a $15.5 million, 12-story structure which was dedicated recently at Great Lakes Naval Station near here, is fully air conditioned.

The three-wing, 800-bed hospital is said to be one of the most modern in the country. Its facilities include 10 operating rooms.

Coolerator--

(Continued from Page 1, Col. 2)

fly ash, and smoke from air passing through it.

Also in the new Coolerator lines, which will be exhibited in the company's Merchandise Mart showrooms, suite 11-103 at the Chicago home furnishings market opening Jan. 6, are a new "Powerette" series of small-sized units for casement or standard windows, a substantially changed "Compact" series for standard window installations, and a revised Coolerator humidifier line.

The separate Lectrofilter portable air cleaner, introduced in the past year, remains unchanged, as does the line of dehumidifiers, according to W. G. Kronauge, vice president in charge of sales.

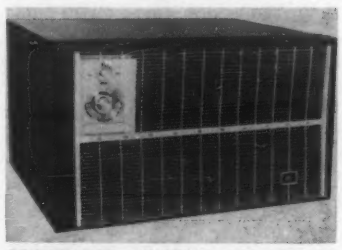
In the Coolerator central air conditioning systems, there are improvements in the series designed for small commercial and residential installations, notably a new 2-hp remote air-cooled condensing unit with matching coils and a remote 2-hp heat pump unit.

Two-speed operation is standard on virtually all the 1961 Coolerator room air conditioners. The new front-mounted control panel features gold colored control knobs.

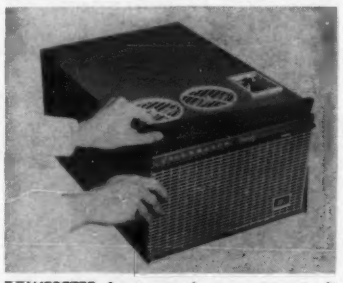
All models are now in production at the company plant here, Kronauge reports, for immediate shipment.

The 1961 Custom series of room air conditioners is comprised of 26 models, half of them available with the Lectrofilter.

On the 2 and 2½-hp sizes, there is a new 40-watt heating unit built into the base pan under the evaporator coil, which acts automatically to prevent any condensation on the outside of the cabinet.



COOLERATOR CUSTOM series features Lectrofilter for air cleaning.



POWERETTE front panel opens to permit lift out of filter.

The all-new Powerette room air conditioners are available in two models, 4,000 and 6,000 Btu.

They have automatic thermostats, two rotary no-draft grilles, and permanent filter with germicidal additive.

Completely restyled, the Coolerator Compact series for 1961 comes in 12 models, two of them with reverse cycle operation.

Coming, too, for the Compact series, is a Jiffy-Mount which will permit installation within a few minutes, Kronauge adds.

On 1961 Coolerator humidifiers are a new float control, an automatic humidistat, and a pump system which provides a water wall that washes air.

CRMA--

(Continued from Page 1, Col. 3)

As regards industry sales performance, it was pointed out that total industry shipments for the first 10 months of 1960 had fallen slightly below the same period in 1959, with the probability that results for the entire year would show some decrease. The members were reminded, however, that inasmuch as 1959 was the best year in the history of the commercial refrigerator industry, the fact that 1960 will take second position in the all-time records—and by a substantial margin—should be regarded with considerable satisfaction.

The panel that was asked by CRMA President George H. Mayhew, vice president of Tyler Refrigerator Corp., to take stock of the industry's position included: John R. Caulk, Jr., president, Hussmann Refrigerator Co.; William Fogel, president, Fogel Refrigerator Co.; and Renslow P. Sherer, board chairman, Sherer-Gillett Co. Caulk set the stage for the discussion by saying that, in his opinion, the chief reason why the average purchaser figuratively flips a coin to select the source of his new equipment is its "sameness."

"We are all like a bunch of bumps on a log," Caulk declared. "The right way out of this situation, as I see it, is for each manufacturer to stop trying to see how close he can come to his competitors' designs, but to utilize the same effort and engineering talent to see how different his products can be made."

Fogel urged that in addition to innovating more individualistic designs of the various basic types of refrigerated fixtures already on the market, a generous portion of each manufacturer's research and development budget be devoted to what he termed "beyond the horizon planning," to create radically new product applications.

Sherer called attention to the large expenditures made in other industries in searching for new products, and expressed doubt that the commercial refrigerator industry had given the value of such programs sufficient consideration.

In a sense, the over-all sales picture in terms of product breakdown gave backing to the contention that "innovations pay off." On the basis of a preliminary analysis of the industry's 1960 sales by product types, the multi-deck open-type display case showed the largest proportionate gain.

The Food Service Equipment section of CRMA, meeting just prior to the association meeting, gave special attention to the recently published National Sanitation Foundation standard for reach-in refrigerators, the members expressing general approval of its provisions.

Reporting to the general meeting, Section Chairman Edward N. Northey, president, Herrick Refrigerator Co., expressed optimism about the new year's opportunities for refrigerated food service equipment, pointed out that total volume of the section members for the first 10 months in 1960 had shown a small increase.

want to

save on job costs?

specify these dependable Halstead & Mitchell products:

PRODUCT	SERIES	TYPE	NOMINAL TONS	WRITE FOR BULLETIN
COOLING TOWERS with an exclusive 20-Year Guarantee on the wetted deck material against failure due to fungus attack or rotting.	EC	Standard • Propeller fan • Belt drive	5 to 150	EC-500
	ECK	Take-Apart • Propeller fan • Belt drive	5 to 100	EC-500
	ECD	Residential • Propeller fan • Direct drive	2 to 7½	EC-500
	ECKB	Standard or Take-Apart • Centrifugal fan • Belt drive • Horizontal or Vertical discharge	5 to 30	ECKB-601
WATER-COOLED CONDENSERS Mechanically cleanable, condensers are of double-tube, true counterflow design for extra liquid subcooling.	EL	Standard for small commercial refrigeration	⅓ to 3	WC-300
	WR	Multi-Section for larger commercial refrigeration	2 to 7½	
	R	Close-coupled for packaged air conditioning	1½ to 10	
	T	Heavy duty for poor water conditions	⅓ to 25	
	SW	Sea water and corrosive water usage	⅓ to 25	
AIR-COOLED CONDENSERS Wide fin spacing won't clog quickly. Casings are rugged; won't rattle or loosen. Use with a Limitrol valve for year-round operation. Multiple circuiting at no extra cost.	AC	Propeller fan • Horizontal discharge • Belt drive	3 to 100	AC-102
	ACV	Propeller fan • Vertical discharge • Belt drive	5 to 100	
	BC	Centrifugal fan • Belt drive	10 to 30	
	ACR	Residential model • Centrifugal fan • Cabinet has space for compressor and controls	2 to 7½	
FINNED COILS Turbu-Flo® fins for better air wash. Aluminum fins, copper tubing. (Copper fins to order.) Heavy-gauge galvanized steel casings (or aluminum). Cleanable tube water coils to order.	DE	Direct expansion coils for Refrigerants 12, 22 and 500	Standard is 7 fins per inch. Available in 6, 8, or 10 FPI on order. Finned heights of 12 to 36 inches. Finned lengths of 18 to 120 inches. 1 to 8 rows deep. Other sizes to order.	DE-200
	CWC	Chilled water coils		CWC-202
	HWC	Hot water coils		HWC-201
	S	Standard steam coils		S-200
	NFS	Non-freeze steam coils • Steam distributing tube type		
AIR HANDLERS Large centrifugal fans in a heavy-gauge cabinet of formed post members, flush mounted panels. Space for up to 12 rows of coil depth; 2 to 68 sq. ft. of face area.	AH	Suspended type	3 to 120 tons at std. conditions of 880 to 47,500 CFM at 400 to 700 FPM; up to 2" W.G.	AHU-100
	VAH	Floor mounted type		

HALSTEAD & MITCHELL CO. · BESSEMER BUILDING · PITTSBURGH 22, PA.

BE SURE TO VISIT BOOTH N-217 AT THE INTERNATIONAL EXPOSITION IN CHICAGO, FEBRUARY 13-16

Fedders Sales High for First Fiscal '61 Quarter

$14,033,780 Net Sales Yield $830,228 Profit

MASPETH, N. Y.—With the exception of the extremely abnormal first quarter of fiscal 1960, sales and earnings of Fedders Corp. for the three months ended Nov. 30, 1960, first quarter of the 1961 fiscal year, were substantially higher than for any corresponding period in the company's history.

Salvatore Giordano, president, so reported at the annual meeting of stockholders held recently at the company's headquarters here.

Net sales in the fiscal first quarter totaled $14,033,780, compared with $26,199,743 in the like year-ago period and $10,505,076 in the 1959 fiscal first quarter. Net income was $830,228, against $1,932,185 in the 1960 fiscal first quarter and $428,730 in the 1959 quarter.

"It will be recalled," Giordano said, "that volume and profits for the comparable months of a year ago reflected the exceptionally heavy orders placed for the earlier-than-usual delivery of room units by Fedders distributors, the great preponderance of which were in anticipation of the imposition of a 10% federal excise tax on all room air conditioners.

"Results for the first three months of fiscal 1961, however, continued the steady improvement in first-quarter earnings experienced in recent years. Operations for the quarter also continued to reflect the success of the company's merchandising and promotional efforts in placing the marketing of air conditioning equipment on a year-round basis," he said.

"As was anticipated," Giordano said in his first-quarter report, "shipments of air conditioners were below those for the comparable months of fiscal 1960, although they were considerably above the level of earlier more normal fiscal first quarters.

"Volume on the company's automotive products (radiators and heater cores), as well as its residential and commercial heating equipment was at least equal to or exceeded that for the previous year's corresponding period."

Earlier, Giordano had reported that for the fiscal year ended Aug. 31, 1960, Fedders had the highest earnings in its history and sales rose 24% over the previous year to a level near the record volume of 1957.

Sales for the fiscal year totaled $68,838,709, compared with $55,500,644 in the preceding year, and earnings amounted to $4,540,614 against $3,021,453.

John B. Scarboro Dies

ATLANTA—Funeral services were held recently for John B. Scarboro, retired secretary-treasurer of Bowen Refrigeration Co., who died in a private hospital at the age of 74.

'60 Sales Up 50%

Remington Introduces 1961 Room Unit Line at National Conference

AUBURN, N. Y.—High spot of the national sales conference held here recently for the unveiling of its 1961 room air conditioner line was the announcement by Herbert L. Laube, president, that Remington Corp.'s completed sales for the fiscal year just ended were $3,107,769, as against $2,062,104 last year, an increase of 50%.

Answering a question from the floor concerning published reports of a 700,000 unit year-end industry inventory carryover, at distributor and factory levels, E. Moise Johnson, vice president and sales manager, stated that "we were very fortunate in ending the current season with less than a carload of 1960 units in stock. Thus our field men will have the advantage of offering our new 1961 models throughout the entire season ahead."

Two facts were used as the basis for the conference theme, "weigh the difference": First, according to U. S. Government statistics, Remington has exported over the past ten years over four times more of its entire output than has the American room air conditioner industry as a whole, it was pointed out. Second, the company said, all Remington air conditioners to be offered to the domestic market during 1961 will now be identical to heavy-duty export models designed to combat "the tough trials of the Tropics."

The 1961 Remington line of window units consists of 13 models in three series. Ten models are suitable for operation on either 50 or 60-cycle current. The remaining three are designed for 230 volts 50 cycles only.

Dimensions of the "El Dorado" series are 13½ in. high by 23 in. wide by 21¾ in. deep. The "Mark 4" series is 14 in. high, 29¾ in. wide, and 16½ in. deep.

Three models from 1¼ to 2 hp are included in the "Powerhouse" series, cabinets for which measure 16 in. high, 29¾ in. wide, and 22 in. deep. All have cleanable filters and, except for the El Dorado series, all are treated with a germicidal additive for air purity, it was stated.

Additionally, there is a line of units called "Wall-Ways," for in-the-wall installation. These are housed in wall sleeves of 16-gauge zinc-coated steel, 14 in. high by 29¾ in. wide by 16½ in. deep.

Finally, for 1961 Remington is offering three water-cooled consoles, for 115, 208, and 230-volt operation. Capacities range from 11,300 to 21,000 Btuh, the company said. These are housed in all-steel or mahogany fronted cabinets, 30 in. wide by 13 in. deep by 36 in. high.

"Because of the recent addition of several strong distributing organizations to its sales force, Remington's initial 1961 production run, which will start in early January, is scheduled to be just twice as large as the first run for the 1960 season."

NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.

Your Prize Package!

Ucon Brand Refrigerants—
The Compact and Convenient Line
for All Refrigerant Needs

Latest Word from Ucon IKE:

Ucon Brand Refrigerants come in just three popular sizes... and only one type of easy-to-use cylinder per size— a boon to all who like things convenient, effective and uncomplicated!

GREAT FOR SERVICEMEN! Specify Ucon Refrigerants in the 10-lb. and 25-lb. Ring-Top cylinder – the original, handy cylinder that uses its head to make *your* job easier. Carries easier, stores easier, stands inverted by itself while you use it. Ring-Top cylinders have the new convenient handwheel valve that saves time on the job, too. And all Ucon Refrigerants—in 10-lb., 25-lb., or 145-lb. cylinders—are readily available from your wholesaler *when* you need them . . . *as much* as you need. No problem of inadequate inventories of the size you need for the job!

GREAT FOR WHOLESALERS! With Ucon Brand Refrigerants, inventory problems are minimized, valuable floor space saved. No need to carry more than the three popular cylinder sizes to satisfy customer request. Record-keeping for cylinder returns is easy, too. For all the refrigerants you need with all the back-up you want, carry Ucon Brand Refrigerants!

Ucon Refrigerants—the *COMPACT* and *CONVENIENT* Line—for
• top quality product • easy-to-use cylinders • friendly personalized service

Ucon Brand Refrigerants are manufactured by
UNION CARBIDE CHEMICALS COMPANY— Division of Union Carbide Corporation
270 Park Avenue, New York 17, N. Y.
Exclusive Sales Agent to Air Conditioning and Refrigeration Wholesalers
ANSUL CHEMICAL COMPANY, Marinette, Wisconsin

Ucon and Union Carbide are registered trade marks of Union Carbide Corporation

a UNION CARBIDE product — Ucon BRAND refrigerants — exclusive sales agent ANSUL

Inside Dope

By GEORGE F. TAUBENECK

(Continued from Page 1)

"However, if we fail to put our own house in order, the consequences for the welfare of the American Economy will be serious indeed."

The United States need not lower its standard of living in order to meet foreign competition. You can bank on that.

"Any nation's standard of living is a reflection of the productivity of its own economy," asserts the NAM.

"It cannot be any other way, since there is no magic in government action or labor union action—or for that matter in business action—which will permit a nation to enjoy more goods than it produces, or than it can get in return for that part of its production which it sends abroad.

"Foreign trade raises productivity—and hence mutual standards of living—because it enables nations to concentrate efforts on those particular types of activity in which they are most proficient."

(And best suited, in terms of climate, skills, and raw materials, it might be added parenthetically.)

Free Enterprise Triumphant!

Nations of Western Europe, along with Australia and Japan, have raised their productive efficiency to a high degree—chiefly by sticking to the principles of sound money, the free market, and encouragement of private enterprise.

They have shown more concern than the United States has in recent years about control of inflation, perhaps because they have had more harrowing experience with its damaging effects.

Moreover, they have demonstrated an intense interest in technological innovation—which used to be considered a special characteristic of American business.

Yes, there is no intrinsic reason why the increased prosperity and productive efficiency of other parts of the world should be deleterious to business in the United States.

On the contrary, progress abroad should open to us new opportunities for trade, and for a broader division of labor between nations.

Any exchange of goods can be mutually beneficial whether or not those who make the exchange live in the same or in different countries.

Ultimate effects of increased productivity abroad are beneficial to us only, however, if our own economic, social, and political policies are sensible.

Generally speaking, we shall need to resist inflation, improve incentives, remove barriers to investment and growth, and attain the utmost flexibility and adaptability in our American economy—if we are to profit from prosperity overseas.

(Continued on next page)

OUT OF ALL THE CHRISTMAS CARDS which Dope receives, this one from Airtemp President Paul Augenstein tickled our fancy most. In a sense all American industry has reached the heights that have made this country the most prosperous in the World by a willingness to throw its chips on the table, so to speak, with the confidence that a return will be forthcoming because of the value in the product and the promotion put behind it. But in the air conditioning industry, the game is a little more "loaded" because there is a factor—the weather—which still plays a big part in how the game will come out—a big pile of winnings, a small "percentage" gain, or maybe just breaking even. Paul Augenstein's card tells this in as graphic a fashion as we have seen.

Bundy can mass-fabricate practically anything

(Continued from preceding page)

Stories of the Week

Castro showed Nikki around his confiscated island empire.

"In this place," he pointed out, "I have 100 people working 10 hours a day each, at 70 pesos a day."

They moved on to another slave labor camp.

"Here, I have 200 people working 12 hours a day at 60 pesatos."

At the third spot Castro puffed proudly:

"And here, I have 300 people working 18 hours per day, and paid only in food and rags."

Nikki clapped a hand to his head.

"Comrade!" he exclaimed, that's *real* communism—not like that thing we've got going back home."

Washington official got so mad at his foreign car that he had it deported, we hear.

Dining In Outer Space

Air Research and Development Command, USAF, has appointed Whirlpool Corp. to design and build America's first Space Kitchen.

This experimental project calls for the development of a miniscule unit which can provide all the foods and beverages required by three space pilots during a 14-day mission.

Occupying an area approximately 10 ft long and 7½ ft in diameter (within a forward section of a multi-stage rocket) this projected space kitchen will contain a miniaturized, thermoelectrically fueled refrigerator and freezer, a three-cavity oven, and a built-in 2½-gal capacity water system with its own heater.

"During actual space flight," Howard Brehm of Whirlpool tells us, "the kitchen, the men, and everything else within the capsule will be absolutely weightless.

"Any efforts to prepare a recipe or cook a meal during space flight could be disastrous. Foodstuffs, cans, pots and pans, knives, forks, glassware, and spoons would be floating around in mid-air.

"Even if the astronaut did escape unharmed from this flying avalanche, there's no telling what damage it could cause to flight instruments, the oxygen system, or the capsule structure itself."

Although such familiar snack items as candy, nuts, cookies, cakes, and bite size sandwiches will be available to the spacemen, much of the food will be in pre-processed or dehydrated form, and packaged in disposable containers resembling oversize toothpaste tubes.

Choosing his menu, the spacemen will place food containers requiring heat in the Space Kitchen oven. Automatically, within 30 minutes, this heating device will warm the food to 175°.

Inasmuch as water does not behave at zero gravity as it does under normal circumstances, dehydrated items could present a preparation problem.

However, Brehm reveals that this dilemma has been solved by designing a manually-operated displacement pressure pump into an air-free water system.

To operate the pump, which meters out a pre-selected amount of air-free cold water, the space crewman will jerk a displacement handle with one hand while holding on to a support bar with the other.

(Without something to hold on to, the weightless spaceman would push himself across the kitchen every time he tried to move the handle.)

To eat, the astronaut will place a mouthpiece on each container, then place the container in a device resembling a squeeze-type potato masher.

By squeezing that attachment, food will be forced out of the container and into the astronaut's mouth.

Chez Mars

Dining in outer space thus will be far removed, both figuratively and literally, from normal earthly procedures.

Routine: the containers and tubes will be snapped into holders on a compartmented tray. The tray itself will be held down by clamps. Next, the astronaut will strap himself into a seat to keep himself from floating around aimlessly.

After removing a food tube, he'll place its mouthpiece in his kisser, squeeze out the sustenance, then replace it and grab another food container.

As for us, we'll take vanilla.

Westinghouse Building Distribution Center In Minneapolis Area

MINNEAPOLIS — Westinghouse Electric Corp. announced it has begun construction of a product distribution center to serve the Minneapolis-St. Paul area.

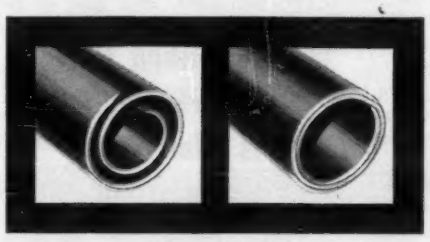
The new facility is located at 3501 Highway 100, in the St. Louis Park section of Minneapolis, the present location of a Westinghouse lamp division warehouse and office building. The existing building will be doubled in size to provide 73,000 sq ft of floor space, according to the announcement.

The new building will permit consolidation of Westinghouse activities in the area by providing warehouse, service, parts storage, and sales office space for several divisions. Among these is Westinghouse Appliance Sales, which distributes room air conditioners, dehumidifiers, and other items.

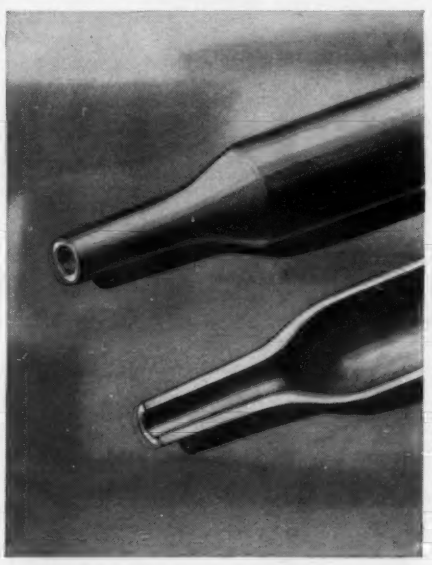
And this mass-fabrication experience can help you. Whatever kind of small-diameter steel tubing you are now using—or plan to use—Bundy can probably make it better . . . in quantities of thousands or millions. How? By making your part from Bundyweld®, the steel tubing that's rated tops in quality in the refrigeration industry. Bundyweld meets ASTM-254; and Govt. Spec. MIL-T-3520, Type III. And by applying years of problem-solving experience to your tubing problem, Bundy engineers can often find short cuts that shave costs in mass-fabrication. Let Bundy experience help you. Write: Bundy Tubing Company, Detroit 14, Michigan.

BUNDY TUBING COMPANY • DETROIT 14, MICH. • WINCHESTER, KY. • HOMETOWN, PA.

World's largest producer of refrigeration tubing. Affiliated plants in Australia, Brazil, England, France, Germany, Italy, Japan.



Bundyweld, double-walled from a single copper-plated steel strip, is metallurgically bonded through 360° of wall contact. It is lightweight and easily fabricated . . . has remarkably high bursting and fatigue strengths. Sizes available up to ⅝" O. D.



Bundyweld tubing can easily be swaged down to capillary size with the inside diameter held to very close tolerances. Swaging the end eliminates an additional joint. The ⅜" Bundyweld tubing shown above is swaged down to .081/.084 I.D.

BUNDYWELD® TUBING

Field Study Shows Efficiency of Boiler Over Season under Normal Operation

By C. Dale Mericle

ATLANTA — Just how efficient is a gas-fired steam boiler when operated in the field under normal conditions?

To find out some factual data on the subject, Georgia Power Co., electric utility with headquarters here, recently checked figures over a period of several months on the boiler installation in a large downtown Atlanta office building.

With permission of the owner, the utility installed a condensate meter to obtain an accurate measurement of steam production. In addition, readings were taken on the standard gas meters.

Purpose of this study was to provide ammunition for Georgia Power, which aggressively promotes electric heating — both straight resistance and heat pumps — and tries to combat the efficiency claims made for gas-fired equipment by the competing utility.

The study was supervised and analyzed by Roy W. Wages and James C. Thompson of Georgia Power.

Two 100-hp boilers are involved in the system, only one being operated at a time, however, and steam is generated at 10 psig.

In this study, as in its general sales approach, Georgia Power is not interested in the efficiency obtained by such a heating plant in a one-hour full-load test in the laboratory or even a carefully supervised short test in the field. Rather, the utility wants to know what the efficiency is for the whole season when the plant is operated with normal care and attention.

It is only on the seasonal basis, Georgia Power contends, that a true comparison can be made between cost of heating with electric resistance systems and that of systems burning fossil fuels because of such factors as stand-by losses, gradual reduction in efficiency of fuel-burning equipment over a season, etc.

Seasonal efficiency of the boiler in the Atlanta office building was determined by Georgia Power to be 58.5%, assuming natural gas with a gross heating value of 1,000 Btu per cu ft, and 65%, using the net heating value of 900 Btu per cu ft.

Data collected in this study covered the period of November through April, during which Atlanta experienced 2,369.1 degree-days, according to the report of Wages and Thompson.

In this period the net amount of gas supplied to the boiler was 5,319,928 cu ft, which represented 5,567,204,180 Btu.

Steam produced during the same period amounted to 3,176,500 lbs with a Btu value of 3,114,875,900.

On the basis of these figures, dividing the Btu value of steam produced by the Btu value of the gas input results in a boiler efficiency of 55.95% for the period, the electric utility report shows. Boiler efficiencies, as noted from periodic readings of the gas and condensate meters, varied from 34.1% up to 63.1% during the period.

Figuring on the basis of 1.675 cu ft of gas required to produce 1 lb of steam, as measured in this system, this results in a seasonal boiler efficiency of 58.5% with 1,000 Btu natural gas and 65% efficiency with 900 Btu gas, as noted.

Insulation for Electric Heating Is Film Topic

NEW YORK CITY — Introduction of a new 25-minute sound-slide film on figuring insulation for electrically heated houses and a revised and enlarged booklet on the same subject was announced by National Mineral Wool Association.

Entitled "Eliminating the Guesswork," the film is intended for viewing by electric utilities and cooperatives, manufacturers, distributors and contractors of electric heating equipment, and insulation contractors.

Although concerned with electric heating, the film devotes as much if not more attention to air conditioning, explaining that it is the increasing popularity of home cooling that has been mostly responsible to the greater attention now being given to proper insulation.

The film reviews the association's new "R" standard for insulation which sets up "resistance values" for various types of thicknesses of insulating materials and is supposed to supplant the usual method of merely specifying thickness.

Copies of the sound-slide film are available from the association at $20 each.

The 32-page revised booklet "How to insulate your home for electric heating" represents an interesting development in that it gives equal play to heat pumps and electric furnaces along with baseboard, wall panel, and ceiling cable methods of electric heating.

Lease, Time Payment Plans on Large Boilers Offered by Manufacturer

PHOENIXVILLE, Pa.—Boiler users can now lease new boilers or buy them through instalment payments under two plans announced by Russell E. Emrich, president of Boiler Engineering & Supply Co. here.

The company builds Continental automatic package boilers of 15 to 600 hp for industrial, commercial, and institutional service.

"The leasing arrangement makes new boilers available to the user without a capital investment," it was pointed out. "Working capital is thus conserved for expansion and other purposes."

The leasing plan was formulated by Boiler Engineering and Nationwide Leasing Co.

If the lessee wishes to become the eventual owner of the boilers, purchase options can be made at varying levels depending upon the age and type of boilers. After the primary term, options for leased Continental boilers can be continued at a yearly cost of slightly more than the original monthly payments, it was stated.

The instalment plan was worked out by Boiler Engineering in conjunction with Factors Corp. of America.

Down payment is 20%, with the balance payable in 12 to 36 equal successive monthly payments. Interest is a flat 6½% per year on the amount to be financed.

There is no additional service charge of any kind, the announcement said.

Report OHI, NFC 'Quickening Pace' In Drive for Single National Organization

NEW YORK CITY — "The current progress toward formation of a single over-all national organization to foster the interests of oil heat is a most encouraging development."

So stated Charles H. Burkhardt, managing director, Oil Heat Institute of America, at a meeting of the OHI Distribution Div.'s Steering Committee.

"It is apparent," Burkhardt continued, "that negotiations between Oil Heat Institute of America and National Fueloil Council are proceeding at a quickening pace and that substantial progress is being made to put the two organizations together, to form a strong, effective, well-financed agency. . . .

OHI Going All Out

"The OHI representatives in these negotiations are going all out to help with the formation of the new 'one roof' organization. At the same time, they are taking the proper steps to safeguard the interests of all elements of the industry who have worked together for so many years in Oil Heat Institute of America.

"The benefits of a single organization in which the resources of refiners, marketers, terminal operators, equipment manufacturers, dealers, jobbers, and distributors are pooled for the over-all good of oil heat, should be plain to anyone who has observed the competitive situation in recent years.

Cite Assaults

"Our industry has been faced with massive assaults by competitive forms of energy. These assaults have been waged by industries well-organized and well-financed to do the job assigned to them.

"In spite of the skills and energies of oil heat people who have attempted to stem the tide, it must be apparent to all that our efforts have been handicapped. There is need for unification into a single organization of all activities and all segments of the oil heating field.

"In these circumstances, the new organization to be formed by the amalgamation of OHI and NFC is not only desirable, it is essential to the future health of every branch of our industry."

Burkhardt concluded: "All of us as individuals and in our official capacities should do everything within reason and within the scope of sensible and effective policy, to facilitate this necessary endeavor."

Film Shows Copper Tubing Use In Buildings

NEW YORK CITY—A new 30-minute, sound-color film, "Copper Tube In Building Construction," produced by Revere Copper & Brass, Inc., is available to distributors for exhibiting to contractor groups, the company announced.

The film covers the entire subject of good copper piping practice. It was "designed to interest contractors and mechanics, who must translate specifications into actualities on the basis of highly competitive bids, and also to interest architects and engineers, who must specify lighter and stronger materials to utilize every inch of space," the company said. "The many advantages of Revere copper tube in commercial and residential building are shown."

Specifically, the film shows:

1. The actual installation of a copper plumbing and heating system in a custom built house, including underground water service and forced circulation hot water heating.

2. The job-site prefabrication on a project consisting of 1,400 units, where copper sub-assemblies for water, waste, and drain systems are made up.

3. The installation of copper plumbing and heating systems in large commercial buildings as well as various industrial installations of copper process piping to carry fluids and gases at high or low temperatures and pressures.

4. The installation of copper radiant panel heating systems and snow melting systems.

5. Practical demonstrations and recommendations for good piping practices in making flare-type compression joints, soldered joints, and brazed joints.

6. The inside of a large soldered joint, with methods of avoiding the causes of voids and weak joints.

The film was made with the cooperation of Revere's Technical Advisory Staff who are shown staging demonstrations of joining techniques held for the trade under distributor sponsorship. Such meetings bring valuable information to contractor groups, it was pointed out.

MIGHTY MITE
MOTOR PROTECTORS
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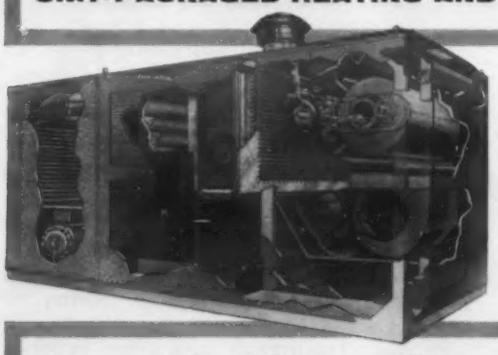
Compact-Aire ROOF-TOP
UNIT-PACKAGED HEATING AND COOLING



A SIZE FOR EVERY JOB
Heating capacities (oil or gas) 120,000 to 1,000,000 B.T.U. output.
Cooling capacities (air or water) 5 to 40 tons
3 designs—4 series
34 sizes

Economical installation — Efficient operation

● Compact-Aire Roof-Top packaged units are economical to install and operate. They require a minimum of wiring and piping, and practically eliminate expensive duct work. With a Compact-Aire unit selected to meet the individual heating and cooling requirements of each job, efficient operation is assured. Units are weatherproof. First costs are minimums. Operating costs are low. Write for free brochure YR-161.

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6425 Cambridge Street • Minneapolis 26, Minnesota

Temperature Measurement To Be Conference Topic March 27-31

COLUMBUS, Ohio—The technical program is now complete for what is claimed will be "the most comprehensive meeting ever held on the subject of temperature measurement."

About 200 papers will cover temperature measurements from absolute zero to 10,000,000°K with interests ranging from the temperature of the human body to the temperature of the sun.

Almost every area of the physical, biological, and medical sciences will be represented at the 1961 Symposium on "Temperature, Its Measurement and Control in Science and Industry," March 27-31.

The conference is sponsored by the American Institute of Physics, the Instrument Society of America, and the National Bureau of Standards.

"Temperature ranks as one of the most important of the physical quantities, and its measurement and understanding have provided some of the most difficult and challenging problems in experimental and theoretical physics," it was stated.

The 200 papers scheduled for presentation come from universities, government and military research laboratories, and industrial research laboratories in this country, as well as from research centers in Australia, Germany, Netherlands, Canada, Soviet Russia, and Great Britain.

The symposium is organized into 16 sessions, devoted to such topics as: basic concepts of temperature, temperature scales, thermocouples, resistance thermometers, gas thermomters, spectroscopic methods, pyrometry, miscellaneous methods, automatic methods for measurement and control, measurement in dynamic systems, special sources of temperature, cryogenics, plasmas, temperature measurement in geophysics, temperature measurement in astrophysics, and temperature measurement in biophysics and medicine.

"Some of the most recent advances in high temperature and low temperature measurements will be described in the papers delivered at the symposium," the announcement said. "Interest in the higher regions is sparked by the great efforts being made in plasma physics. At the lower end of the scale, there is great interest in extending the International Practical Temperature Scale down to the region of 1°K."

Persons interested in the symposium may obtain further information by writing to V. W. Sikora, Instrument Society of America, 313 Sixth Ave., Pittsburgh 22, Pa.

Workers In Air Conditioned Factories Safer, Ford Mechanical Engineer Says

NEW YORK CITY—Workers in air conditioned factories may not realize it, but they are safer as well as more comfortable than their freezing or sweltering neighbors. But their employers may sometimes suffer sleepless nights keeping the help happy.

In a paper delivered at an engineering meeting here, E. M. Schmidt, chief mechanical engineer, engineering and construction department, Ford Motor Co., said that manufacturers must get rid of the air contamination usually found in industrial plants quickly, efficiently, and safely to protect both workers and machines.

Industrial ventilation "actually prevents physiologic damage from abnormal atmospheres," he noted. The paper was delivered before the winter annual meeting of The American Society of Mechanical Engineers at the Statler-Hilton hotel.

One slip can lead to trouble, Schmidt indicated. He cited the example of a puff of unburned fuel that escaped from one plant heater. The resulting flame seriously burned an employe working on the unit. An induced draft fan near such a unit "insures positive purging and elimination of the products of combustion," according to Schmidt.

There are many different kinds of ventilating systems, ranging all the way from an open window to expensive and delicate machines. The industrialist must be careful, Schmidt said, that air which comes from some other part of the building, drawn along by the ventilating system, does not drag contaminants past personnel and other processes on the way.

"The design of industrial ventilation must be approached with an open practical mind," Schmidt told his audience. "The heated contaminated air rises to the underside of the roof; therefore that is the place to install the exhaust facilities. The comparatively cooler and cleaner outside air for make-up is most effective when introduced at a low level with sufficient control to benefit employes.

"Tight, intelligent specifications, products by reputable manufacturers and good field inspection during installation are prime requisites for a safe installation of industrial ventilation."

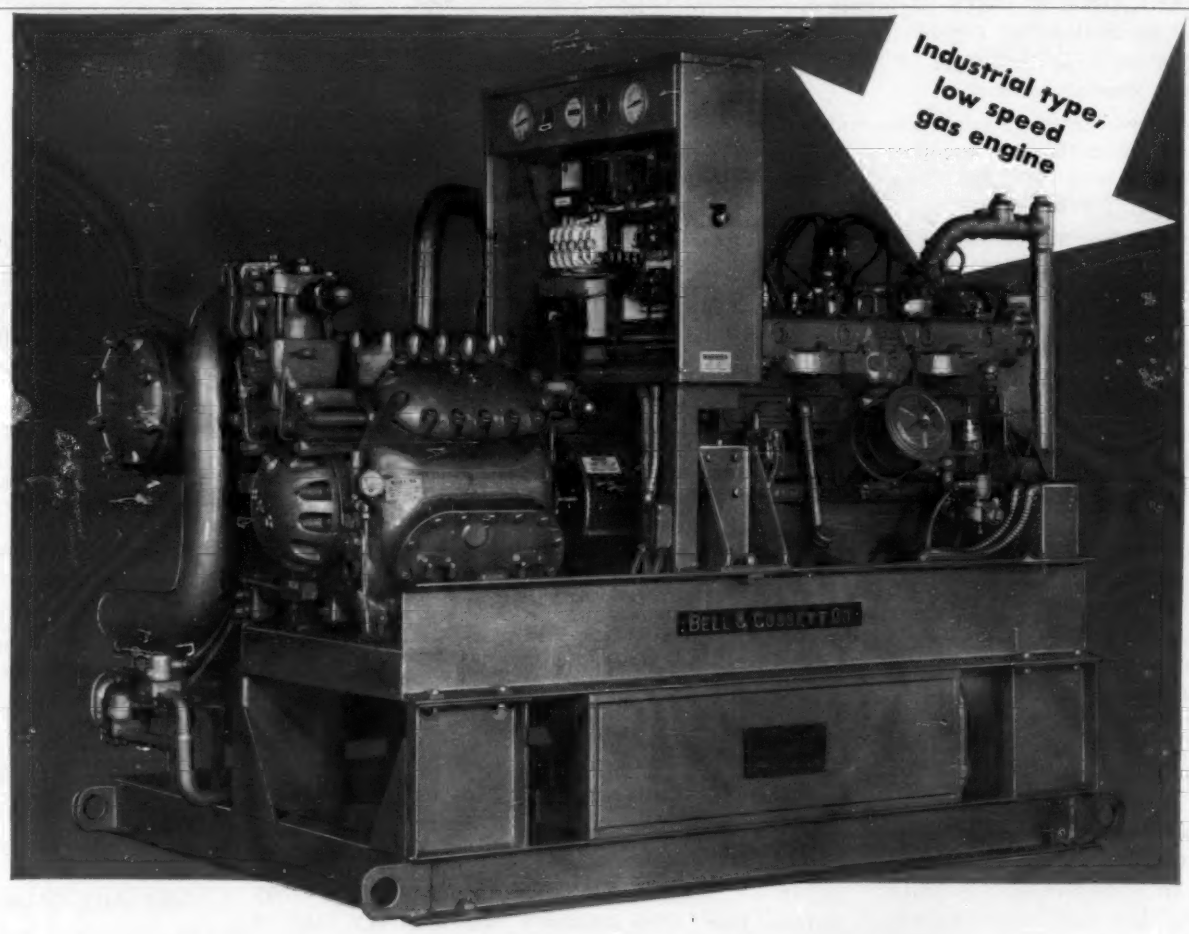
To Discuss Integration Of Heating, Cooling And Lighting Mar. 6

NEW YORK CITY—Integration of lighting, heating, and air conditioning through relighting will be discussed at the opening session of the World Lighting Forum to be staged in the New York Coliseum, March 5-8.

This symposium will be staged from 10 to 11:30 a.m., Monday, March 6. Douglas Haskell of *Architectural Forum* will be moderator, with Benjamin Benson of Thomas Industries and Murray Quin of Day-Brite Lighting as speakers.

To keep symposium attendance to a highly qualified level, seats are reserved and are available for a $2 registration fee.

The forum is a feature of the Third National Lighting Exposition sponsored by the Lighting, Lamps, and Electrical Manufacturers Salesmen's Association, Inc. There is no charge for admission to the exposition, which is expected to have 250 exhibits by more than 200 manufacturers.



NOW GAS ENGINE POWERED...

B&G Package Liquid Coolers, Condensing Units and Engine Compressors are now available as "package" units powered by integral gas engines. These are the only units with all major components (except the engine) *designed, built and guaranteed by one manufacturer.*

B&G gas powered units are equipped with an industrial type, low speed gas engine developed for minimum oil and fuel consumption. The engine operates at a maximum of 70% of rated horsepower, for longer life and minimum maintenance.

Additional power plant features include an engine oil auxiliary tank that permits 2000-hour operation without adding oil...automatic and adjustable engine warm-up...100% no-load start at each start-up...automatic choke...capacity control effected by automatically varying engine speed in addition to varying the B&G compressor unloading.

A particularly outstanding feature of all three units is the compressor, an achievement in advanced design and precision manufacture. All compressors have *one* bore—a few interchangeable parts service all units.

B&G "package" cooling units incorporate many special features as standard equipment which in competitive units are "extras" or are simply not available. Send for descriptive literature.

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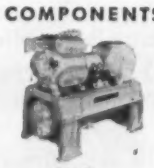
A FULL LINE OF REFRIGERATION AND AIR CONDITIONING "PACKAGES" AND COMPONENTS

B&G Evaporator

B&G Centrifugal Pump

B&G Condenser


B&G Condensing Unit

They'll Do It Every Time

by

Jimmy Hatlo

PSST--JOE--EDDIE--IF THAT GUY IS LOOKING FOR ME--I DON'T WORK HERE--YOU DON'T KNOW ME...
THE GUY TALKING TO GRACE IS AN ENGRAVING SALESMAN--ANGLEWORM IS SO FRIGHTENED HE EVEN DUCKS THE KID WHO BRINGS THE COFFEE...
ANGLE SCRAMMED OUT OF A FLEABAG WITHOUT PAYING THE RENT--HE KEEPS SEEIN' PROCESS SERVERS BEHIND EVERY BUSH...
AW! FOR CRYIN' OUT LOUD!! WHY DON'T YOU PAY YOUR BILLS? QUIT DUCKIN' AROUND CORNERS!!
HE AIN'T KIDDIN' WHEN HE SEZ HE DON'T WORK HERE--HE'S SO BUSY HIDIN' HE AIN'T GOT TIME TO UNCORK HIS FOUNTAIN PEN!
I THINK HE SLEEPS HERE SINCE STONEY, THE LOAN SHARK, SENT HIM A GET-SICK CARD...
HELPING THE OFFICE FRIGHTWIG WORRY ABOUT PAYING THE PIPER...
THANX AND A HATLO HAT TIP TO BILL McGARRY, 1529 WHITE PLAINS RD., BRONX 62, N.Y.
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Restrained Optimism for 1961

REMARKABLE is 1961's beginning for a lack of predictions by corporation presidents. Normally, at this time of the year, our desk is flooded by such.

As of now, however, hardly anybody in a position of authority seems willing to stick his neck out. Will 1961 be good, bad, or indifferent for business?

In the last few months NEWS people have ranged all over the map, attending meetings, and interviewing subscribers representing every branch of the air conditioning, heating, and refrigeration industry. Here, in capsule, is what we "feel" about the business atmosphere:

Industrial air conditioning: Volume good, and probably will continue that way. But the price war still is on; and profits are dubious.

Commercial refrigeration and air conditioning: This area remains stable, profitable, and promising. The equipment leasing movement has lost momentum; but nobody is crying about that.

Residential heating and air conditioning: Heating installations are down; probably won't rise much, if any, in 1961. Cooling market is growing. Look for a rise here this year. It is expected that more than half the new homes built in the Southwest in 1961 will be comfort cooled.

Gas air conditioning: Definitely on the rise, both the residential variety and the big stuff.

Room air conditioners: This is the screwball end of the business. Manufacturers don't sell air conditioners; they sell trips abroad. Dealers don't sell air conditioners; they sell money (price). As usual, volume will be determined by how hot it gets how soon.

Automotive air conditioning: The only skyrocket in our industry's arsenal. Sales of 750,000 predicted for 1961—up from 610,000 last year. General Motors pundits believe 12 to 15% of their autos will be cool-clean-aired this season.

OEM suppliers: On the whole, 1960 business was as good or better than 1959 sales. Mildly upward trend expected to continue in 1961. Motor manufacturers, who've been losing money because of a competitive battle-for-survival, are optimistic. A number of smaller competitors have gone under; so there will be fewer slicers of the pie this year.

Foreign business: Brightest star on the stage. Everybody's getting into the act, and making money, too. It's an open-and-shut, can't-lose deal. We have a near monopoly on refrigeration and air conditioning know-how. Prosperous overseas customers want our products. Their market saturation figures are exceptionally low. Sky's the limit.

Happy New Year, everybody, and may your cash registers ring a merry tune in 1961.

Are Annual Model Changes Good for the Dealer?

BETWEEN THE Vance Packards who grossly exaggerate waste due to planned obsolescence and those manufacturers who imply that it is somehow un-American even to question their wasting of our natural resources are a few level heads.

Level heads who recognize that we are talking not only about wasting materials but about wasting time, all-important time.

And who recognize that annual model changes cost dealers much more than they cost the consuming public.

"Look at it this way," explain many dealers. "Everytime there is a model change, we must:

1—Familiarize ourselves with the new model; frequently this means leaving our operation in order to attend a factory or field school;

2—Correct and update all our literature —prices, specifications, part numbers;

3—Re-train all our salesmen; this means taking them off the floor or off the road for as long as the training takes, or imposing on their family time and ours."

All this takes time—time which the dealer would rather spend managing his business, which his salesmen should spend selling.

Forgetting the consumer just for a moment, it would be interesting if manufacturers surveyed dealers on their reaction to annual model changes and planned obsolescence.

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F. M. COCKRELL, *Founder*

'The Conscience of the Industry'

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SCHOOL COOLING COULD CUT CAPITAL COSTS

University of Illinois
Urbana, Ill.

Editor:

Included in recommendations which I recently made to Mr. J. Donald Kroeker, Chairman, ASHRAE Long-Range Planning Committee, was the idea which you advanced in editorials regarding the sensible and logical year-round use of existing and projected school buildings for all levels of education.

It is my opinion that the impact which this suggested increased in the use of school buildings could have on helping to solve the economic problem of capital costs which are burdening so many communities—and the tremendous opportunity which the air conditioning industry and profession has, not only for increased business, but for service in helping to solve one of the country's most important economic problems—should be given the most serious consideration.

You have made a good start in your editorials.

It was encouraging to note in a recently published story, that the United States office of Education had approved a $57,495 Federal Grant for a research study in a Pinellas County, Florida, air conditioned school.

M. K. FAHNESTOCK,
Chairman
Physical Environment Unit

SEES AUSTRALIAN MARKET EXPANDING RAPIDLY

Email Services Pty. Ltd.
Waterloo, N.S.W., Australia

Editor:

Sam Hart urged me to make a special effort to see you, and I did—but Hell! your country is that *BIG* that I did not get near enough to Detroit to say Hello. For this I want to apologise and promise that next time over, I will remedy this matter.

In the United States I studied the operations of the Hussmann Refrigerator Co. for whom we manufacture under licence in Sydney. What an organisation these Hussmann boys have!

Two plants in St. Louis, one on the West Coast, one on the East Coast, and one in Canada. Add to this licencees in England, France, Mexico, and Australia and you have the picture—plus of course distributors all over your wonderful country.

George I don't know that I can add to your knowledge of Australia—you seem well informed from the items I read in your NEWS. I do feel this however—that Australia provides a rapidly expanding market for refrigeration and air conditioning.

And now I am back home—back to our beaches, our beer and our bridge. Of course, being "down under" we are heading into winter and we drive on the wrong side of the road—otherwise I think we're fairly normal.

JACK SHAW

WORD FROM HAITI

Shannon Co.
Port-au-Prince, Haiti

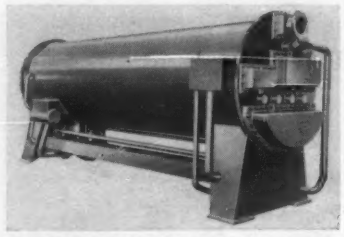
Editor:

We were tickled to death with your "Inside Dope" on Haiti. Really, you hit so many nails on the head you demonstrated both your abilities of observation and our own efforts in a new light.

Personally, I am in wonderful health, and business is as usual. The trouble has blown over, and all is quiet on this front.

SHANNON YARBOROUGH

Offers Absorption 'Cold Generators' In 3 Sizes



● Three new sizes of absorption "Cold Generators"—in capacities of 400, 455, and 530 tons—have been announced by The Trane Co., Dept. AH&RN, La Crosse, Wis. The new units expand the line to 12 basic sizes in the 100 to 530-ton range.

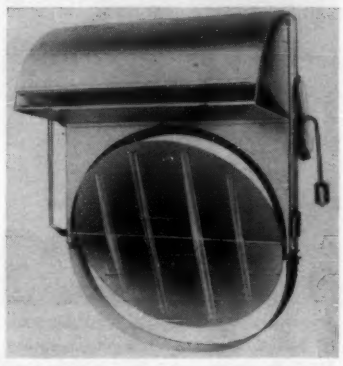
The rapidity with which the absorption Cold Generator has gained acceptance since its introduction in 1959, is the main reason for future expansion of the line, according to the manufacturer, who reports sales figures have exceeded by 50% the anticipated goals.

The three new sizes feature the same single-shell, hermetic design as the original nine sizes introduced in 1959. The single-shell arrangement reduces machine height, permitting installation in low-ceiling areas, the company said. Hermetic design prevents air leakage, thus maintaining full-rated capacity and resisting internal oxidation, it was pointed out.

In addition, the company states, the absorption Cold Generator is completely automatic, which eliminates the need for a full-time operator.

Automatic Combustion Control Cuts Heating Costs

● A new type of automatic combustion control that is said to reduce heating costs considerably in both residential and commercial structures is being introduced in the New York area, according to the Fueltronic Corp., Dept. AH&RN, 101 Park Ave., New York, N. Y.



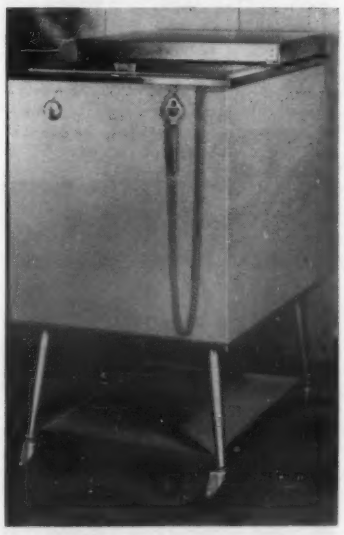
Known as the Cole draft governor, the control automatically maintains a constant and normal furnace draft in all kinds of weather and under all kinds of draft conditions, it is claimed. The device, which is made of lightweight cold-rolled steel, has no motor or electrical parts. Instead a sensitive "balanced gate" opens and closes the damper in the smoke stack regulating the correct flow of stack gases and consumption of fuel, it was stated.

The governor is being marketed exclusively by the Fueltronic Corp., which was organized last May to sell and install the equipment. The firm is headed by Norman Miller, president, and Nathan M. Cott, vice president, who have franchised a separate sales organization, Safeway Industries, Valley Stream, L. I., to handle the private home market in New York and New Jersey.

The price of the governor will range from under $100 for the home model to about $300 for the larger ones for use in apartment buildings up to eight stories high. Price information on governors for installation in apartment buildings over eight stories will be given on request, Miller said.

The device, first introduced in the St. Paul and Minneapolis areas by its inventor, A. D. Cole, can be used with equal efficiency in oil or coal burning furnaces, the announcement said. The equipment is manufactured by the Cole Sewell Engineering Co., which produces a line of related equipment in the heating-cooling field.

'Sociable Cooler' Is for Office, Home



● The "Sociable Cooler," a new refrigerator modernly styled for use in the office or as a second refrigerator in the home, is now in quantity production at Beverage-Air Co., Dept. AH&RN, Spartanburg, S. C.

"This new compact refrigerator embodies many of the engineering features that have been developed by Beverage-Air for its line of commercial coolers," the announcement said. "The Sociable's interior of 3.5 cu ft allows space for cooling 120 6-oz or 72 12-oz bottled beverages. The four standard size quick-release ice trays supply over 8 lbs of ice cubes at a single freezing. Ice refreezes in 2 to 3 hours.

"Refrigeration is supplied by a ⅛-hp, hermetically-sealed unit. The Sociable has a full stainless steel service top with easy-glide top opening lid providing a convenient place for coffee maker, blender, ice crusher, or other small appliances that may be plugged into the electrical outlet provided for this purpose.

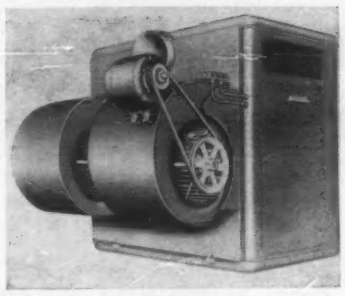
"The Sociable is now available in a selection of three baked-on enamel finishes: Indian Ivory, Sunlite Yellow, and Malibu Blue; also in four Vinyl-clad finishes: Light Oak and Walnut Wood Grains and Blue-Green or Light Yellow fabric-textured Vinyl.

"Standard equipment includes a set of four 14-in. annodized aluminum legs and choice of bottle opener-cap catcher or a bottle-can opener on decorative chain. Other accessories available are caster legs with storage shelf assembly and lid lock with two keys."

Retail price of models with standard equipment will be about $186.95.

Want More Details?

ADDITIONAL details on products that are described on these pages may be obtained by writing the manufacturer at the address given in each What's New story.



Improves Dual Blower Systems

● Development of new and improved dual blower systems for its blower type gas-fired unit heaters and its modular duct furnaces has been announced by Reznor Mfg. Co., Dept. AH&RN, Mercer, Pa.

The dual blower systems are used with Reznor's 250,000 Btu and 300,000 Btu US Series blower-type unit heaters, and also with the DSB Series packaged blower systems for Reznor's 250,000 and 300,000 Btu modular duct furnaces.

The new dual blower systems are powered by a single ½-hp motor, with the blowers mounted on a common drive shaft. Two ⅓-hp motors formerly were used to drive the blowers, which previously were mounted on individual shafts.

"Utilization of a single motor not only reduces the horsepower requirement of the system, but also simplifies its electrical wiring and lowers operating and maintenance costs," the company said. "A single drive shaft assures smooth, even inlet air flow, thus improving efficiency.

"Fafnir bearings are incorporated as standard equipment in the new systems. These bearings may be ordered packed with a silicone grease which guarantees their functioning in environments ranging from -40°F to 300°."

Develops 3, 10, 15-Ton Gas Air Conditioners

● Three air conditioning systems, new 3, 10, and 15-ton units, have been developed by Gascool Div. of Vector Engineering Contractors, Inc., Dept. AH&RN, 2321 Forest Lane, Garland, Texas, to complete a series of natural gas or LP gas powered air conditioning systems for residential or institutional use. Other systems included in the series are the 5 and 7½-ton capacity units now available.

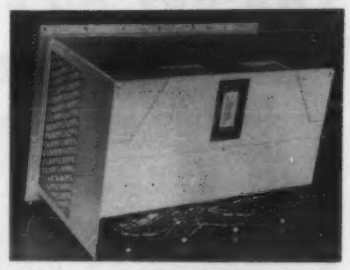
Average fuel requirement of the equipment is only 20 cu ft of 1,000 Btu natural gas per-ton-hour of operation, according to the company. LP gas fuel consumption is claimed to be less than ⅛ gal per-ton-hour. At 100°F ambient temperature with 40° suction, the 3-ton model has a rated capacity of 36,400 Btuh at 1,500 rpm with Refrigerant-22.

The 10-ton model unit has a rated capacity of 126,000 Btuh at 1,500 rpm at 100° ambient temperature with 40° suction and 151,000 Btuh at 1,800 rpm. Similar 15-ton unit has 180,000 Btuh at 1,250 rpm and 276,000 Btuh at 1,800 rpm.

"The Gascool systems are custom-built to meet any individual air conditioning requirement," it was stated. "Gascool systems provide easy installation either outdoors or roof-mounted requiring but two simple connections to the cooling coil in the duct system. Single-phase electric service suffices; engine starting requires only standard 230-volt 20 amps."

In addition to these units, a new roof-mounted system featuring combination heating and cooling in one unit is also available.

Weapon Support Equipment Conditioner Bowed



● Introduction of a small, 118-lb. air conditioner designed specifically for weapon support equipment has been announced by Task Corp., Dept. AH&RN, 1009 E. Vermont Ave., Anaheim, Calif.

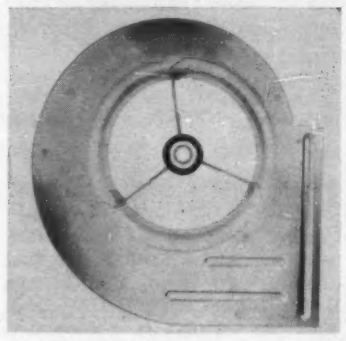
The new 1½-ton lightweight unit was described by company spokesmen as occupying less than 4 cu ft, and designed for cooling air-transportable electronic equipment such as radar huts, communications trailers, and other ground support equipment. Rotating elements operate in the industrial speed zone of 3,400 to 3,700 rpm for both compressor and fans.

According to Richard Rigney, designer of the unit, the use of low speed components has resulted in benefits of low audible noise level, simple maintenance, and outstanding reliability.

Latest in the family of "Task-line" air conditioners, the new 1½-ton unit is offered in 60 and 400 cps models. Both models contain the same basic parts, company officials pointed out, simplifying the stocking of replacement parts at military repair depots.

Specifications at MIL spec rated capacity include operation to 125° F ambient air, 600 cfm conditioned air flow, and 5.4 kw power consumption under peak operating conditions. Dimensions are 24¾ in. by 17¾ in. by 14¾ in. Similar units are available in ¾ and 3-ton capacities.

'Snap-In' Bracket Bearing Uses New Principle



● What is said to be a new principle for assembling bearing supports to blowers used in the air conditioning and heating industry has been announced by Triangle Mfg. Co., Dept. AH&RN, Oshkosh, Wis., manufacturer of self-aligning, sleeve type pillow block bearings and bearing mountings.

Now in production is the new "Snap-In" tri-arm bracket bearing. "The three bracket arms lock securely into the naturally rigid venturi of the blower side sheet with only a simple press fit by hand," the company said. "This eliminates the usual welding, bolting, or riveting operations.

"The secureness of the locking was demonstrated by suspending a 200-lb man from the bearing socket, with the bracket retaining its snug fit."

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Two-Day All-Industry Show In Miniature Marks 15th Anniversary of Jordan Supply

TOM JORDAN, SURROUNDED BY SOME OF HIS EMPLOYES, cuts the 15th anniversary cake at a reception given for exhibitors.

By Frank J. Versagi

BUFFALO—*Happy.*

That is the word to describe Tom Jordan of Jordan Supply Co. when he celebrated his company's 15th anniversary with a little All-Industry Show of his own recently.

Happy is also the correct term to apply to the manufacturers who helped Tom celebrate by setting up displays and exhibits for a two-day show.

And Tom's customers—the almost 300 who came to talk to the manufacturers—they were happy too for the chance to discuss their problems with "someone from the factory."

In addition to growing in age, Jordan Supply has grown in volume. "We do about five times the business we started with," Tom told the NEWS, "throwing us into six figures now."

Jordan Supply serves western New York State. "I am a firm believer in staying in one's own area. If we move out in any direction, we would be imposing on the normal territory of other wholesalers."

Jordan is also firmly convinced that he must stay downtown—in spite of the parking problem. He can't see moving to outlying areas or to new commercial/industrial developments.

Percy Smith, Jordan's credit manager, says that one reason for the growth of the company is its realistic credit policy. "We will take on marginal accounts, but we expect them to meet the 30-day terms like our better accounts. You'd be surprised how many times this results in creating a good account from a marginal one."

Smith recalls a few customers who were used to 90-day credit with other suppliers. "They took 90 days to pay those accounts, while they were taking care of us in 30. Yet, the actual volume of business with us was higher than it was with the more liberal suppliers."

'No Curiosity Seekers'

Most of Jordan's good customers attended his 15th anniversary show, many driving through the usual Buffalo-area snow to get there. Both Jordan and the exhibitors commented to the NEWS that "there were no curiosity seekers in the group; these people came here with a purpose." Many were company principals.

The idea of a show of this type had played around in Tom's mind for quite a while, he admits. From time to time, he has had individual manufacturers and suppliers come in for a one or two-day educational exhibit.

"Most of my people can't get to the national shows; this gives them a chance to see things they never would see otherwise."

The gay tone of the birthday show was set by bouncy Art Mederer, purchasing, who was to be seen everywhere in his bright red jacket.

All exhibitors were interviewed by the NEWS and all agreed that traffic was good. As expected, those exhibits with live demonstrations captured a lot of attention.

General Chemical Div., Allied Chemical Corp., for example, demonstrated for the first time in public its recommended method for cleaning out a hermetic system after a burnout.

The General Chemical procedure makes use of a pressurized cylinder of Refrigerant-11. Using plastic hose, General's Wally Smith was able to show the actual cleaning operation in process.

DuPont's "Freon" division had a display showing the different operating conditions for Refrigerants-12 and -22.

Virginia Smelting's exhibit concentrated on the company's line of water-treatment chemicals.

Revere Copper & Brass also had a live demonstration. Newell W. Smith, Revere's research engineer, showed how to make brazed joints without a flux by passing nitrogen—at 1 cu ft/hr through the tubing while using a phosphorous-bearing alloy rod.

Traffic was heavy, too, in Airserco's booth where E. C. Williams, president, displayed and operated many of his company's testing and diagnostic instruments.

Exhibitors Have Reservations

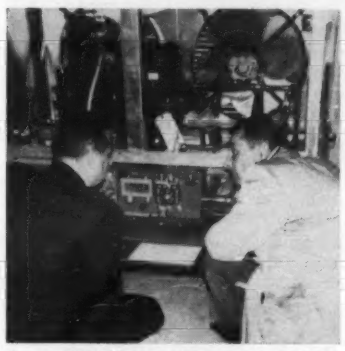
Happy as they were with the success of Jordan's celebration and show, several of the exhibitors privately expressed a reservation to the NEWS. "We are awfully afraid that this kind of thing will grow beyond reasonable frequency. It is just not possible to put on a show of this type for every wholesaler who wants one."

Indeed, there were several other wholesalers attending the show and asking Jordan how he did it. One has already had such shows; one other is working hard on getting a show for his company; others now seem very interested.

"I have to admit that the cost per contact for exhibitors is quite high in individual shows like this," a wholesaler told the NEWS. "It might be better if we organized ARW (Air-Conditioning & Refrigeration Wholesalers) on a divisional basis, each division containing three or four regions. Then we could have divisional shows like this which would make it worth the manufacturers' while to participate."

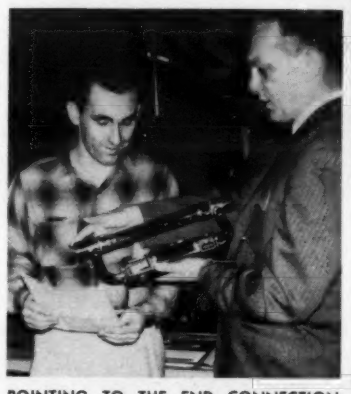
When this suggestion was relayed to some of the manufacturers, two recalled that the "purity clause" of Air-Conditioning & Refrigeration Institute "really forbids this whole sort of thing. We are not supposed to exhibit regionally, nor partake of promotion in the efforts of individual wholesalers—if we are strict about it."

"—to introduce your products to tradesmen (warm air, sheet metal, plumbers) now interested in air conditioning" . . . Jordan.



E. P. MURPHY of Buffalo, in the light coat, listens intently while Kramer Trenton's A. Robert Tankle explains the advantages of the Thermobank Compressor assembly.

BONDED SILICA GEL DRIER is shown to a helmeted serviceman by T. J. Phillips, regional sales manager of Alco Valve Co.



POINTING TO THE END CONNECTION of Bell & Gossett's Thermoflo Indicator, Frank P. Langley, Jr., district representative, explains the application of the flow meter for either hot or cold water to William J. Braun of Buffalo.

"HOW DOES THE MOISTURE INDICATOR PERFORM IN A DIRTY SYSTEM," asked Clayton Mosier, in sweater, from West Batavia, N. Y. C. C. Grote, Sporlan Valve Co. district manager, answers his question.

HORACE SCHMIDT, sales manager for Halstead & Mitchell, listens intently while two servicemen discuss their experiences with the company's air-cooled condensers. They liked them.

HOLDING THE ALL-ALUMINUM "E Z Kleen" filter, R. Kenneth McAfee of Research Products Corp. tells Paul Hagen of Buffalo that the filter can be used for flow in either direction.

HENRY VALVE CO.'s Dri-Vue moisture indicator and Dri-Cor drier are shown to K. Ticen of Attica, N. Y. by Joe Scherer, Henry field engineer.

"WHAT ABOUT SPECIFICATIONS?" was the question asked Dunham-Bush's Harry F. Tuczynski by Albert Dumbleton of Warsaw, N. Y. and Bob Muldoon of Buffalo.

RANCO'S C. E. WHIPPS, with glasses, discusses the technique of replacing any of over 1,100 present controls with one of the company's new A30 series of 23 controls. A. H. Keirn, left, and Joseph Cicco, both of Buffalo, spent some time questioning Whipps.

OVER HOW LARGE A RANGE will the amperage decrease as voltage increases is the topic of discussion here between Jown Downen, left, Bendix-Westinghouse service manager, and Willard L. Goeckel, well-known International Director of RSES, from Buffalo.

STUDYING PENN CONTROL's new 275 series of oil-protection controls is Donald Allen of Lakeview, N. Y., left. Describing the control is Penn's district manager, J. E. Corbett.

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Emerson Electric Reports Highest Sales, Earnings

ST. LOUIS — Highest sales and earnings in the history of the company were reported recently by Emerson Electric Mfg. Co.

Consolidated sales for the company and its domestic subsidiaries for the fiscal year ended Sept. 30 were $125,468,000 including sales of $24,349,700 of Day-Brite Lighting for the full fiscal year. This compares with sales of $91,333,000 reported for last year when Day-Brite Lighting was not a subsidiary, an increase of 37%.

Net earnings for the 1960 fiscal year were $6,000,310 including earnings of Day-Brite Lighting for the fiscal year of $991,150. This compares with net earnings of $3,938,700 in last fiscal year, also excluding Day-Brite and represents an over-all increase of 52%.

Earnings per share in 1960 were $2.80 on the average of 2,146,785 shares of the common stock outstanding after adjustment for the two-for-one stock split on Jan. 26, 1960 and the 3% stock dividend paid to stockholders on Sept. 30. This compares with $2.29 per share in the 1959 year on the average of 1,712,282 shares outstanding after adjustments for stock splits and dividends.

Wall Tube Names Bloy Refrigeration Products Sales Manager

NEWPORT, Tenn. — The appointment of Fritz Bloy as sales manager, refrigeration products, has been announced by Wall Tube & Metal Products Co. here.

Fritz Bloy

Bloy was formerly associated with the Bundy Tubing Co. of Detroit, active in the sales organization in the United States and in South America.

Bloy will headquarter in the Detroit office at 9141 East Jefferson Ave. He will be directly responsible for the sale of wire and tube condensers, evaporators, and freezer shelves to the original equipment manufacturer throughout the United States.

Boat Group To Study Refrigeration, Cooling

NEW YORK CITY — The American Boat & Yacht Council, standards-making body of the recreational boating industry, will hold a five-day meeting Jan. 16 to 20, in the Coliseum here in conjunction with the 51st National Motor Boat Show.

The ABYC, currently comprised of about 500 members and about 50 technical project committees, will cover a wide range of subjects during the show, including: 11 technical projects on, among other things, refrigeration and air conditioning.

GAMA Reports

Gas-Fired Residential Boiler Sales Hit 1960 High During October

NEW YORK CITY—Manufacturers of gas-fired residential boilers sold more units in October than in any previous month this year, while combined unit shipments of all types of gas central heating equipment were just under the year's high level, the Gas Appliance Manufacturers Association reported.

Factory shipments of gas boilers, computed through the monthly telegraphic survey of manufacturers conducted by GAMA, totaled 19,178 units in October. The amount exceeds the year's previous high, reported in September, by 444.

Combined sales of boilers, furnaces, and gas conversion burners totaled 135,478 for the month, making the October shipments the second largest number so far this year. The September total, 144.034, is the highest level reported for 1960.

Edward R. Martin, GAMA's director of marketing and statistics, said the number of gas boilers sent to market in October was 3.8% below the 19,934 units dispatched in October of last year. In the first ten months of this year 124,176 boilers were shipped, 3% less than the 128,023 reported for the same period of 1959.

Shipments of forced warm air and gravity type residential furnaces numbered 96,400 units in October, 24.2% less than the 127,200 reported for October, 1959. The ten month totals for this equipment are 767,000 this year and 900,800 last year, showing a 14.9% decline for the current year.

Sales of conversion burners accounted for 19,900 units in October, 21.3% less than the 25,300 shipped in the same month of last year. Ten month totals for conversion burners are 116,100 and 134,600 for this year and last year, respectively, indicating a 13.7% decline for the current year.

Combined October sales of the three types were 21.4% below the 172,434 units dispatched in the same month of last year. The 1960 ten-month total was 1,007,276, a decrease of 13.4% from the 1,163,423 units reported for the first ten months of 1959.

The October and ten-month shipment figures for other types of gas heating equipment were as follows:

Vented recessed wall heaters—October, 1960 shipments accounted for 43,600 units, a 17.7% decline from the 53,000 dispatched in the same month of 1959. The ten-month totals were 305,300 this year and 371,500 last year, a 17.8% decrease.

Room Heaters and other types of gas direct heating equipment—159,500 shipped in October, a 27.6% drop from last year's October level, 220,400. The 1960 ten-month total, 1,003,800, was 17.6% less than last year's 1,218,200.

Gas floor furnaces—The October figure was 13,800, a 13.8% decline from the previous October's 16,000. This year's ten-month total, 75,700, compared to 85,600 units shipped in the like period of last year, showing an 11.6% dip for the 1960 amount.

Gas unit heaters and duct furnaces—shipments of this equipment fell 2.4% in the October comparison but held on to a 3.8% lead over the year ago level in the ten-month totals. The October figures were 20,400 this year and 20,900 last year, while the ten-month amounts were 132,100 and 127,300.

902,114 Central Warm Air Furnaces Shipped In 9 Months

WASHINGTON, D. C. — A total of 902,114 central warm air furnaces were shipped by manufacturers during the first nine months of 1960, the U. S. Bureau of the Census reports.

This is about 12% less than in the same period last year.

September shipments of 147,495 units were the best of the year, though still well below the 170,742 shipped in the same month last year.

Manufacturer inventories at the end of September stood at 226,493 units. According to the National Warm Air Heating & Air Conditioning Association, this is roughly a third higher than inventories at the end of September of the past three years.

"Some concern has been expressed about their size," the association report said.

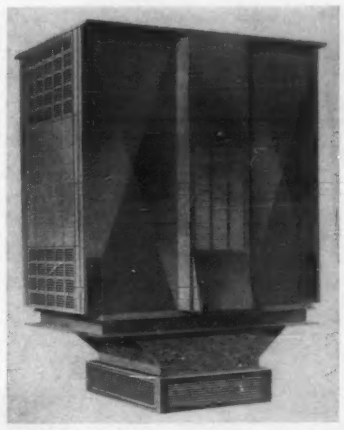
Manufacturers attending the NWAHACA convention reported improving sales in August and September following a poor July.

The Bureau of Census figures indicated that 78.5% of warm air furnaces sold this year were gas fueled, as compared with 73.8% last year. Percentage of oil fueled furnaces dropped from 23.7% to 19.4%. Coal-fired furnaces dropped from 2.5% to 2.1%.

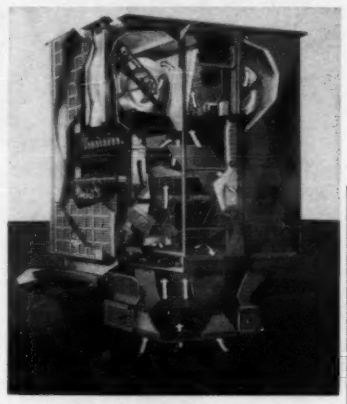
Vector Engineering Elected GAMA Member

NEW YORK CITY — Vector Engineering Contractors, Inc. of Dallas is among 11 manufacturing companies recently elected to membership in the Gas Appliance Manufacturers Association.

Harold Massey, GAMA managing director, said the new members bring the nationwide trade association's enrollment to 576 manufacturing firms. Collectively they produce 95% of all the household, commercial, and industrial gas equipment made in the U. S. today, it was stated.



EXTERIOR view of new Lennox roof top heating, cooling unit which has been developed from two "Landmark" units.



CUTAWAY view of roof top unit shows working parts.

Lennox--

(Continued from Page 1)

the roof and accepts the damper filter section and the Landmark units. The two down-flow heating and cooling units are standard 34-in. units except that filters are removed and the back of the blower sections are cut out.

A transition piece connects the unit with the ceiling diffuser below. The diffuser distributes 4,000 cfm through a four-way deflection register on all four sides. A second transition piece will make the transition with a short way ell both ways from the unit with the return in the center.

Other products exhibited at the show by Lennox included a 17-ton condensing unit featuring refrigerant sub-cooling, a 17-ton blower powered evaporator unit, a multi-purpose industrial heating unit, and a 5.7 kw electric duct heater.

New York City May Extend Heating Hours For Apt. Buildings

NEW YORK CITY—Changes in the city's heat regulations which would require landlords to furnish heat in buildings between 10 p.m. and 6 a.m. will be considered by the Board of Health, the agency announced recently.

Following a snowstorm which hit the city on Dec. 11, the Health Dept. received many telephone calls from tenants complaining about lack of heat in the early morning hours.

Present rules require landlords to maintain a temperature of at least 68° between 6 a.m. and 10 p.m. when the outside temperature is below 55°. The rules do not cover the hours between 10 p.m. and 6 a.m., it was pointed out.

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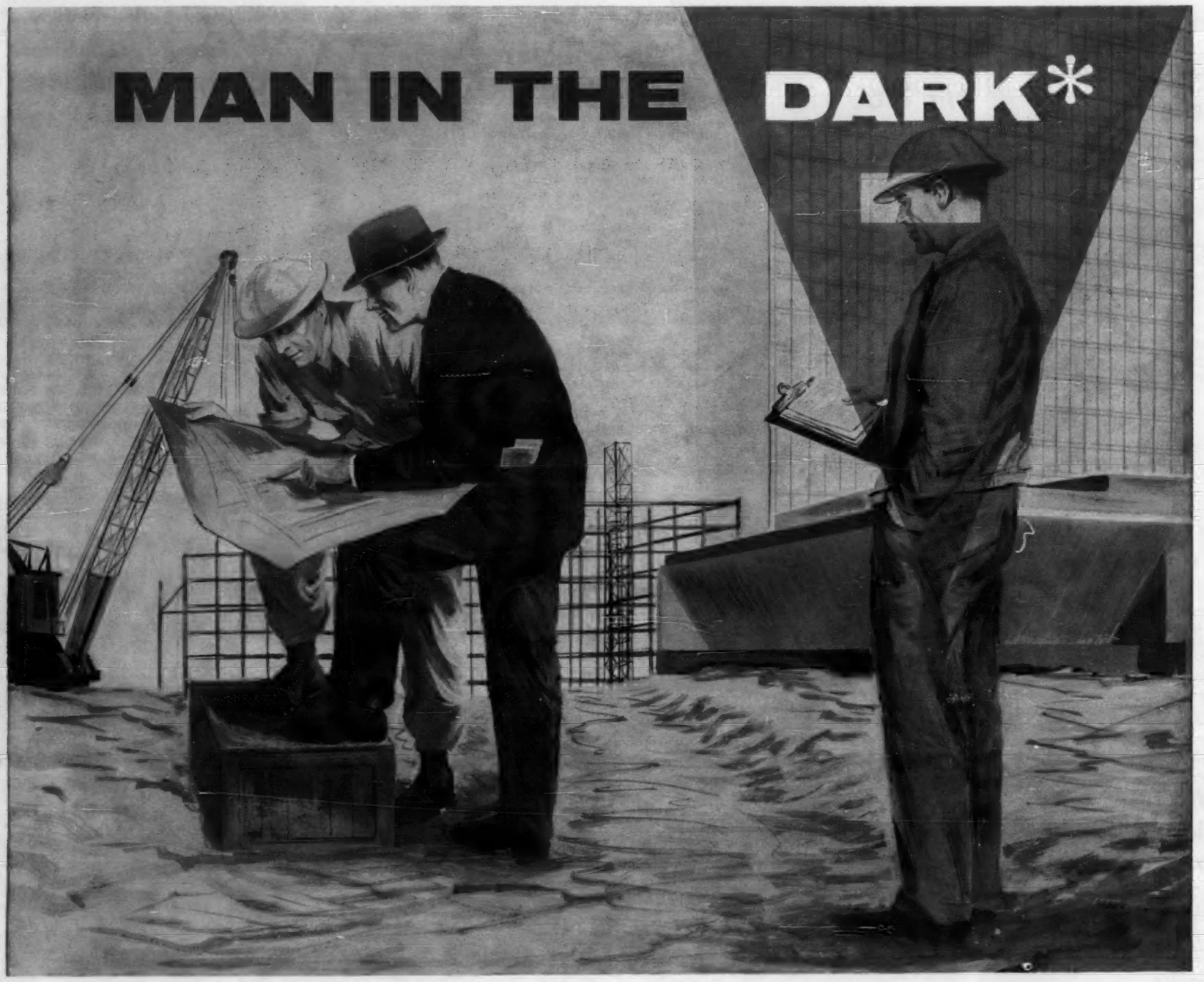

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TECH CENTER

by
FRANK J. VERSAGI

Owner's Report— *The Service Operation*

ONE OF A SERIES presenting the experience and evaluation of users of air conditioning and refrigeration equipment.

Five thousand three hundred forty-nine service calls were made in 1959 to maintain and service the refrigeration and air conditioning equipment at the chain's 107 stores. Most of this service was handled by the company's six-man refrigeration crew; some, at stores in outlying areas, was handled by a contractor.

Study of the files by the NEWS indicates that the average number of calls per store per year runs between 55 and 65.

In dollar terms, between 50 and 58% of the total maintenance bill for the 107 stores goes for refrigeration; another 13 to 16% goes for air conditioning service and maintenance.

Assume a $4,000 weekly total maintenance cost. Between $2,000 and $2,330 will be spent on refrigeration service, another $520 to $640 will be spent on air conditioning service.

Together these items form the largest block of maintenance cost for a modern supermarket. Other items—plumbing, electrical work, cash registers, glass repair—come nowhere near the relative cost of refrigeration.

The service department charges the stores $7.50 per hour for refrigeration service. "This covers all service, warehousing, and overhead expense; there is no unallocated expense at the end of the year to worry about entering in the books."

Records show that the average service call consumes 2½ hours, including travel time. The department performs 18 service and preventive calls a day—three for each of its six men.

These 18 calls account for one third of all service calls made on the 107 stores; the other two thirds are taken up with everything else — automatic doors, painting, checkout stands, scales, garbage grinders.

The coding system used by the chain to break down its repair and maintenance costs is given in the box at the top of the page in columns 2 and 3.

Each week, one of the six men is on night call. The men operate out of trucks which they take home with them, and they leave for an assignment without coming into the shop and warehouse. "They carry enough parts to handle most service, and they only come in once or twice a week," explains the service manager. "If they need a major part for an emergency, we send it out by cab or messenger service. This is much more economical than having the man, himself, come in and then return to the store."

Requests for service come into a central telephone; refrigeration calls are referred to the service manager, who lists them and decides on their priority. Calls are accepted only from the store manager or his assistant. "We won't take a call from the dairy girl or the meat cutter, because they are just as likely to call in when a case is down on defrost as not."

When a serviceman has finished a job, he calls in for his next assignment, and the service manager gives him the call in his area with the highest priority. The men are normally restricted geographically, although they will overlap on occasion.

On a job schedule sheet, the department keeps a running account of where each man is, and the man's in and out time at the store. Further, the serviceman must punch in and out—stamping the time on his work report with the store's time clock. The men mail in their job reports, for the most part, although they may bring them in on one of their trips to the shop for parts.

On days when service calls are slow, the service manager will assign his men to a preventive maintenance call on one of the stores in their area; a file makes it easy to ascertain when PM was last performed on any store in the chain.

Of the 5,300-odd calls made in 1959, 422—about 8% of the calls—were PM calls on refrigeration and air conditioning. Another 3.5% of the calls—about 192 were for preventive maintenance on cooling towers alone.

The analysis of over 5,300 service calls gives a clear picture of the performance of refrigeration equipment. While it is common to make such general statements as "Low temperature compressors have shorter life than normal temperature unit," or "Drains are the most frequent cause of service calls in supermarkets," actual study of well kept records gives the picture in specifics, rather than generalities.

Granted access to the service records of 107 stores, the NEWS analyzed them and assembled them in a manner which gives meaningful interpretation to the statistics.

Of immediate interest is the service frequency required by the several types of fixtures in a supermarket.

As might be expected, low temperature fixtures lead the way—with frozen food, frozen meat, and ice cream cases accounting for over 31% of all service calls made by the refrigeration service department. Among them, these fixtures accounted for 1,673 calls. (For a breakdown, See Table I.)

Among the higher temperature fixtures, meat cases accounted for 12% of the service calls; dairy cases for 7.5%, and delicatessen cases for 3%.

The higher service requirements of low temperature fixtures is also manifested in the significantly higher service rate on produce cold storage (4.8%) to produce coolers (2.9%). Comparison cannot be made between meat coolers and meat cold storage because while all stores have meat coolers, only 50 have meat cold storage facilities. Similarly, only 50 stores have chicken coolers and only 20 have ice cream cold storage.

Flake ice machines, with 408 calls, accounted for 7.6% of refrigeration service calls. The figure would undoubtedly be higher but for the fact that in 37 stores the ice makers are leased and service is not performed by the chain's service group.

Air conditioning is a big problem. Store cooling accounted for 520 calls, 9.7%. Add the 75 calls for meat room air conditioning (in about 95 stores) and the total comes to over 11% of the calls going for cooling.

(To Be Continued)

Analysis of Repairs and Maintenance

Code No.	Description
1	Painting
2	Floor Repairs
3	Automatic doors:
	A. Service agreement
	B. Repairs
4	Plumbing
	A. Drains
	B. Garbage grinders
	C. Other
5	Checkout stands:
	A. Preventive maintenance
	B. Repairs
6	Fixture repairs
7	Miscellaneous store repairs
8	Cart cleaning and maintenance:
	A. Service agreement
	B. Repairs
	C. Replacements
9	Refrigeration
10	Air Conditioning
11	Heating
12	Signs
	A. Service agreement
	B. Repairs
13	Conveyors:
	A. Service agreement
	B. Repairs
14	Lighting repairs
15	Electrical
	A. Repairs
	B. Electrical remodel
	C. Electrical installation (store equipment)
16	Fluorscent tubes and lamps
17	Cash registers and adding machines
	A. Service agreement
	B. Repairs
18	Scales
	A. Service agreement
	B. Repairs
19	Food machinery:
	A. Service agreement
	B. Repairs
20	Roofs
21	Sundries (with explanation)
22	Security improvements
24	Building repairs
25	Doors and locks
30	Remodels
(Maintenance Department:)	
	Plate glass replacement
	Cartage
	Parking lot
	Small equipment
	Forced entry
	Supply room

COMING ARTICLES

Two important discussions will appear in Tech Center during the coming weeks.

REFRIGERANT-22: HERO OR VILLAIN? will compare the experiences and attitudes of manufacturers and servicemen toward R-22 now that it has been in use over a decade.

ADHESIVE BONDED TUBE JOINTS IN REFRIGERATION CIRCUITS—Are they leaving the laboratory and becoming practical? What about field repair of bonded joints? A progress report on this important technique will give details.

Commercial Refrigeration Distributors, Manufacturers 'Hash over Problems'

NEW ORLEANS—Representatives of commercial refrigerator equipment manufacturers and distributors met together during the recent National Commercial Refrigerator Sales Association convention here and hashed over mutual problems.

Without attempting to come to any decision, they exchanged viewpoints on the following problems to increase mutual understanding:

Should manufacturers outline in complete detail for their distributors their sales policy, including those groups to whom they sell direct, such as staff, grocery wholesalers, cooperatives, chains, etc., and the basis on which such sales are made?

What is the present attitude of distributors and manufacturers to the five-year warranty?

If the distributor is a vital part of the sales and service arm of manufacturers, what steps can be taken to strengthen him in the coming years?

Is leasing of greater interest and value to supermarket operators today than a year ago?

What progress has been made to avoid distributor losses in connection with financing of package deals?

How can the equipment distributor of today lower his overhead and streamline his operation in keeping with these "tight money" times and still return a fair profit?

Enterprise Equipment, Ltd. Franchised To Distribute McCray Line In British Columbia

KENDALLVILLE, Ind.—The McCray Refrigerator Co. of Canada, Ltd., announced that R. B. McGenn and W. E. Prince, as partners, have been granted a franchise to distribute McCray products in the entire province of British Columbia.

McGenn and Prince have had many years of experience selling refrigeration in the Vancouver area, it was noted. Their organization will be known as Enterprise Equipment, Ltd., 3930 Grant St., Burnaby 2, B. C., Canada.

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2-Way Radio Mfr. Finds Employes More Efficient In New Air Conditioned Plant

VIEW OF ASSEMBLY AREA in new Raleigh, N. C. plant of Aeronautical Electronics, Inc. where mobile two-way radio communications equipment is manufactured in air conditioned comfort. Two of 11 ceiling suspended heat pumps can be seen.

RALEIGH, N. C.—Aeronautical Electronics, Inc., said to be the largest manufacturer of mobile two-way radio communications equipment in the country, recently opened a new plant four miles north of here that is completely air conditioned by heat pump.

Eleven 7½-ton Airtemp air-to-air multizone heat pumps are used to maintain comfort conditions year around in the 26,000-sq ft plant. All units are suspended from the ceiling of the single story plant and are independently controlled.

Two of the interior units serve the general and administrative offices, two air condition the engineering department, and six units are located in the general manufacturing area, the production offices, stockroom, and metal working area. The 11th unit is located in the lunchroom.

Exterior units for the manufacturing area were placed on the roof and the five outside units required for the office, engineering department, production offices, and lunchroom were lined up beside an outside wall.

Why Air Conditioning

"We have always been strong believers in air conditioning," Charles R. Browning, president, told the NEWS, "realizing that employe comfort can be a considerable factor in the efficiency of any plant.

"Although the assembly operations are rather fine and delicate, there is no real need—equipment-wise—for air conditioning," he confessed. "None of the components are particularly susceptible to heat or moisture.

"However, a completely air conditioned plant certainly is more dust-free and therefore better suited for the assembly of delicate electronic equipment.

"But the real benefit," he emphasized, "comes in employe relations. When provided with a clean, attractive, well-lighted, and completely air conditioned area, the over-all productivity and efficiency of each employe increased noticeably."

Browning said the plant was originally planned to be air conditioned with one large central compressor and a conventional oil-fired boiler for heating.

Why Heat Pumps

"After investigating more fully," he added, "we decided to install heat pumps for several reasons:

"1. The initial cost was lower, even when additional electrical service and wiring was considered.

"2. The anticipated heating cost was less by 10 to 15%.

"3. The need for external fuel storage tanks was eliminated.

"4. Better zoning and reliability were gained. We now have 11 heat pumps with at least two for every area except the coffee shop, which has one. In the event of trouble with one unit, the reserve capacity of the other unit or units is ample to either heat or cool adequately until the troubled unit is repaired.

"5. Elimination of boilers and associated equipment gained 'free' space for

"(a) 30% increase in tool and die shop area.

"(b) room for a photographic dark room.

"(c) room for a large storage closet.

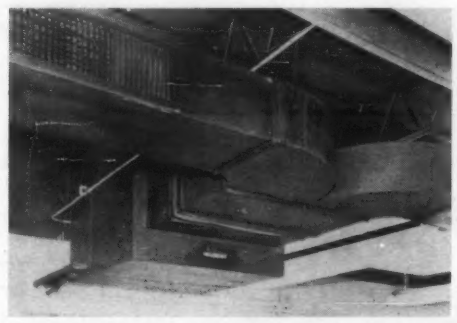
"6. In the event of service, distributor has a better chance of stocking parts since all 11 heat pumps and air handling units are identical—thus a reasonable stock of common parts could be justified by distributor.

"7. A lower insurance rate was gained by the use of heat pumps.

"8. Fully automatic, year-round air conditioning was expected to increase efficiency—which it has."

Browning pointed out that while the use of a heat pump for industrial applications is somewhat new in this area, it appeared to be the most logical choice for his particular application.

The heat pump system was engineered by Southernair Co. of Durham, N. C. and was installed by Biemann and Rowell of Raleigh.



ACOUSTICALLY LINED ductwork carries conditioned air into each of Aerotron's general and administrative offices from two units such as this one.

SIX EXTERIOR heat pumps used to air condition the manufacturing area are installed on the roof directly above the interior units. Outside fresh air, run through filters, can be used when outside temperature is lower than interior temperature and cooling is desired.

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Rotaspray Aids Paper Cup Mfg.

SYRACUSE, N. Y.—The first application of the "Rotaspray Weathermaker System" to the precise manufacture of paper cups was announced by Carrier Air Conditioning Co.

Rotaspray is the central air conditioning system developed by the company for use in factories where accurate control of humidity and removal of airborne particles is essential.

The Solo Cup Co. of Baltimore will use the system to maintain production of quality paper cups, according to James McNamara, plant superintendent.

"In our exacting work, often requiring infinitesimal tolerances, rolls of paper strip must be kept under constant atmospheric conditions," the superintendent further explained.

The aerodynamically-styled Rotaspray, said to be much smaller and lighter than conventional air conditioning apparatus, will be mounted near the one-story plant's wood-frame ceiling.

"The unit's rotating eliminator wheel will make possible air velocities four times that of standard equipment, and its self-flushing action will largely eliminate system cleaning and maintenance," it was stated.

Cooling will be supplied by a Carrier hermetic centrifugal refrigeration machine that furnishes chilled water to the Rotaspray. Heat picked up by the water will be dissipated by two Carrier weatherproof steel cooling towers on the roof.

Trane Extends Warehouse, Plant

LA CROSSE, Wis.—Two additions to The Trane Co. facilities here have been announced by D. C. Minard, president.

One addition is a 52,500-sq ft extension of a warehouse; the second is a 40,000-sq ft addition to a manufacturing plant.

The warehouse space, for which site preparation is already under way, will be used primarily to handle planned increases in parts and standard unit inventory, plus some light assembly operations, Minard said.

"The new manufacturing space will permit enlargement of production facilities for large centrifugal compressors and the company's hermetic absorption 'Cold Generator,'" he said.

The additions are scheduled for completion by early spring of next year. Total cost of the projects, including machinery and equipment, will be about $1.4 million, Minard said.

Worthington Names 2 to Board of Directors

NEW YORK CITY — Donald C. Power, chairman of the board and chief executive officer of General Telephone & Electronics Corp., and Frank J. Nunlist, vice president-operations of Worthington Corp., have been elected to the Worthington board of directors, according to Hobart C. Ramsey, chairman.

'Conservative' Gains Seen in Industry-

(Continued from Page 1, Col. 5)

aged "store" coolers, almost all water-cooled, in the present market probably the majority of unitary equipment sold for commercial application are split-system air-cooled units.

The flexibility provided by the air-cooled units has opened up some new markets in the commercial field, and the replacement market becomes more of a factor every day. Thus where in the late fifties sales in this category were starting to show a slightly declining curve, this trend seems to have been reversed in the past two years, and 1960 sales are generally regarded to have been as good as the total in 1959.

This total of 110,000 units might probably be considered by some as a "conservative" estimate for 1961, and by certain others as an optimistic estimate. The stage of general business will probably be the determining factor.

HEAT PUMP: Heat pumps continued to record sales gains, with the estimates putting the increase at 25 to 30% for the year. This would mean that total number of unitary heat pumps installed in 1960 might be close to 45,000 units. Another increase of 25 to 30% is expected for next year.

ROOM AIR CONDITIONERS Had a 'Problem' Year

ROOM AIR CONDITIONERS: For the "air conditioning year" ended Aug. 31, 1960 retail sales were estimated at 1,250,000. This represents a rather substantial decline from the 1,650,000 units sold at retail during the preceding 12 months' period. The decline in retail sales is felt in industry circles to reflect primarily adverse weather conditions encountered in most of the northern major metropolitan areas.

The number of units that are being carried over in manufacturers' and distributor-dealer inventories into the calendar year 1961 would seem likely to be not less than 700,000 units. This is based on an estimated production of 1,800,000 units in the 12-month period ended Aug. 31, 1960, an inventory carryover of around 100,000 units into Sept. 1, 1959, and a build-up of some 50,000 units in new models produced in the last quarter of this year.

What was, without a doubt, one of the most erratic market situations the room air conditioner industry ever faced ended Aug. 31, 1960. Coming off of a good season with low inventories by Sept. 1, 1959, the industry got the news of the impending imposition of the excise tax on all room units, and rushed production to get units into the field. Normally, in the last three months of the year production is somewhat at a standstill, but in 1959 it is estimated that close to 500,000 units were produced and put into the field in these three months.

Production—and retail sales—continued at fairly high levels during the early months of 1960, but retail sales encountered a severe drop-off in the usual peak selling season (May through July) in many parts of the country where cool weather prevailed.

There hasn't been much public predicting of the probable course of room unit sales in 1961, but sales executives of the major producers have generally proceeded with plans which aim at boosting sales back towards the 1,500,000 mark.

BIG SYSTEM VOLUME Continues Steady Advance

BIG SYSTEMS: A continued increase in the installed value of big systems has been indicated by the companies who are factors in this field of air conditioning. The ARI says that total installed value of big systems in 1960 will probably have come close to the $800 million mark, as compared with $715 million in 1959.

Predictions for this market by Carrier (see story elsewhere in this issue) and others look to a 10% increase in 1961, based on continued high activity in large multi-space commercial and institutional building, and an ever-increasing growth of industrial air conditioning.

AUTO AIR CONDITIONERS: Growth in sales in automobile air conditioning units in 1960, while climbing to a new high, failed to keep pace with the growth rate from 1958 to 1959. An estimated 615,000 automobiles were equipped with air conditioning in 1960, as compared with 580,700 in 1959, and 383,800 in 1958. Reason for the slowdown in the rate of growth: the accelerated rate of growth of "compact" automobiles.

The following auto industry figures are the tipoff: They show that about 9% of the new cars built in 1960 were equipped with air conditioners, but that only 2% of the compact cars are equipped with a cooling unit. However, with any kind of a weather break such industry authorities as M. C. Peterson of Warner Electric Brake & Clutch Co. which supplies a compressor clutch believes that total sales can hit near the 750,000 mark in 1961, and that 11% of all new autos will have comfort cooling.

HEATING: The estimated total of 1,286,000 new home heating installations in 1960 fell well below the 1,410,000 systems reported sold in 1959. While a decline in sales was generally predicted at the start of 1960, because of the probability of a lag in new housing starts, the decline was somewhat greater than anticipated.

The heating industry is cautiously optimistic about 1961. The percentage of sales made in existing homes continues to grow, and because of this, plus a possible brighter picture on new home construction, the industry hopes to achieve sales close to the 1959 total. Stepped-up promotion programs by both the forced warm air and hydronic heating groups may also serve to step up sales.

COMMERCIAL REFRIGERATORS: Sales of commercial refrigerators (display cases, reach-ins, and walk-ins) in 1960, on the basis of preliminary reports, will fall somewhat below the 1959 figures. However, the decline will not be a major one, and since 1959 was the best year in the history of the commercial refrigerator industry, it is probable that 1960 could wind up being the second-best sales year by a fair margin.

Member executives of the Commercial Refrigerator Manufacturers Association meeting in December, who reported that total industry shipments for the first 10 months of 1960 had fallen slightly below the same period in 1959, agreed that the outlook for 1961 sales was "iffy," with the consensus being that there was a very good chance that sales can at least equal, and possibly show a modest improvement over the past year.

On other kinds of commercial refrigeration equipment water coolers apparently suffered somewhat with the general economic downturn, but the feeling is that with any kind of reasonable business conditions sales can hit near the 150,000 mark again in 1961. The market for automatic icemakers holds reasonably steady, and with the automatic units coming into the picture in ice vending equipment, it is possible that total sales might push past 40,000 units. Sales of refrigerated vending machines have shown a continuing tendency to fluctuate with new commercial and industrial construction particularly. If activity is reasonably fair in these areas, sales in 1961 could hit the 80,000 mark again.

HOUSEHOLD REFRIGERATORS AND FOOD FREEZERS: Assuming that sales for the balance of 1960 were at the same rate as the first 10 months, a total of 3,406,000 household electric refrigerators will have been sold in 1960, as compared with 3,785,000 in 1959. On the same basis, food freezer sales in 1960 would total 1,050,000, as compared with the 1959 total of 1,205,400 units sold by manufacturers.

Gray of Carrier Corp. Cites Factors That Point to Increases

SYRACUSE, N. Y.—Industry-wide gains in the sale of engineered or applied air conditioning installations were forecast by Russell Gray, president of Carrier Air Conditioning Co., based in part on predicted increases in non-residential construction during 1961.

Non-residential building construction is expected to grow by about 5% with office building and hotel construction, both important air conditioning markets, rising 10 and 11%, respectively.

The sharp expansion in air conditioning of educational facilities, with construction in this field up 10%, and in central air conditioning of apartment houses will also contribute to growth in applied installation. Heavy demand is already established in industrial, hospital, and shopping center markets.

Gray pointed out that cities are continuing to remake their skylines. Some of the world's largest buildings are currently under construction and many new urban redevelopment programs are in the planning stage. As for industrial plants, important purchasers currently are textile, pharmaceutical, and electronics manufacturers. The growing awareness of the effect of air conditioning increasing employe productivity also makes the nation's manufacturing plants one of the most promising long term growth prospects, Mr. Gray said.

Central air conditioning of residences last year was up 10% over 1959 despite the decline in home starts.

One of the reasons cited by the Carrier official was the increasing number of speculative builders who found air conditioning an important factor in improving their sales. A similar increase occurred in the air conditioning of existing homes.

These same factors make the outlook for 1961 somewhat optimistic with an upturn in both housing starts and economy expected to offer an added push toward the end of the year.

Carrier dealer sales predictions in various product lines range up to 15% ahead of last year, in many cases exceeding prediction for the industry, Gray declared.

Export Sales Lead Industry in 1960

(Continued from Page 1, Col. 3)

Corp., and chairman of the ARI Foreign Trade Committee.

"Total U. S. exports will be about 20% higher than in 1959," Gardner said. "Air conditioning and refrigeration sales overseas were already 25% higher than last year at the end of the first eight months in 1960. They will probably top the 1959 total by 28 to 30% when final figures are compiled.

"It is hard to judge whether increased exports are a direct result of the White House Foreign Trade Program instituted early in 1960. It is safe to say, however, that the companies which are participating in the international air conditioning and refrigeration business have done a remarkable job which exceeds all previous records.

"Every dollar of these shipments has been spent to promote the economic and social welfare of the countries of destination. It is important to note that the percentage of exports financed through government or semi-government aid programs has been greatly reduced and that the large volume of U. S. products exported represents our overseas customers' and distributors' desire and need for American products. This is a tribute to the entire industry, and particularly to its research and development of new products and applications, its international marketing abilities and its pricing policies.

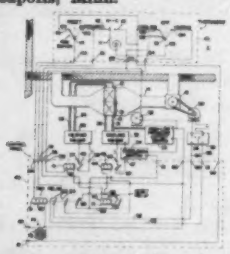
"Present trends spell out only one thing — opportunity. But with opportunity comes a challenge. This challenge is two-fold. First, we must recognize the individuality of countries and customs. Next, we must continue to improve the quality of the service which we give our overseas customers and work to overcome the problems of distances, tariffs, and dollar restrictions.

"Every manufacturer and supplier must recognize that it is our responsibility to provide overseas customers with installations which will give them nothing less than full satisfaction. Only by doing this can we maintain our world leadership in air conditioning and refrigeration."

PATENTS

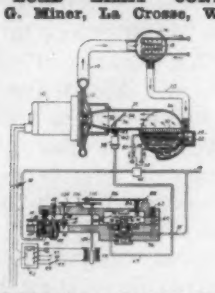
Week of Oct. 11 (Concluded)

2,955,435. CONTROL APPARATUS. Morton J. Willette, Minneapolis, Minn., assignor to Minneapolis-Honeywell Co., Minneapolis, Minn.



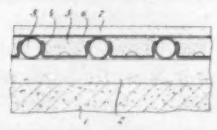
1. In a control system for an air conditioning installation having a cooling coil receiving cooled medium from a refrigeration system and a fan for forcing air from a space to be cooled through the coil; first switch actuating means having a first and second normally open switches when said actuating device is de-energized and a third switch normally closed when said actuating device is de-energized; said first switch being adapted to control the energization of the fan, second switch actuating means having a normally open switch when said second means is de-energized; control means for controlling the operation of the refrigeration system. . . .

2,955,436. REFRIGERATION APPARATUS WITH REMOTE READJUSTABLE LOAD LIMIT CONTROL. Robert G. Miner, La Crosse, Wis.



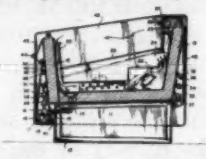
1. Refrigeration apparatus comprising a condenser, an evaporator, a compressor connected to draw refrigerant from said evaporator and discharge the refrigerant into said condenser, an electric motor for driving said compressor, positionable means for throttling the flow of gas to said compressor, adjustable control means for positioning said positionable throttling means in response to the magnitude of electrical energy drawn by said electric motor and means responsive to the temperature of said evaporator for readjusting said adjustable control means to change the relationship between the position of said positionable throttling means and the magnitude of electrical energy drawn by said electric motor. . . .

2,955,437. ARTIFICIAL ICE RINK. Nils Edvin Folke Nilsson, Klingsbergsgatan 21, Norrkoping, Sweden.



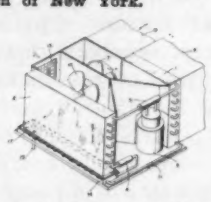
In an artificial outdoor ice rink in combination, a set of cooling pipes arranged in spaced relation to each other, a bedding therefore, a non-radiant heat reflecting material filling up the spaces between the pipes up to level with the uppermost portions of the pipes, and a heat-radiant reflecting material covering the cooling pipes and said filling material at said level to act as an ice supporting layer. . . .

2,955,438. REFRIGERATOR DISPLAY CASE. Harold D. Thompson, Jackson, Tenn., assignor to Piggly Wiggly Corp., Jacksonville, Fla.



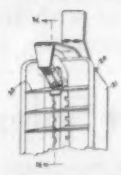
2. Structure the temperature of which is adapted to be modified including upright wall structure, a heat exchange unit for modifying the temperature of said structure, means for supporting said structure on a base, service lines suspended on said upright wall structure at an elevation above said base, a panel for covering said service lines, said panel having its upper edge bent inwardly to provide a hook, cooperative hook means on the exterior of said wall structure. . . .

2,955,439. HEAT PUMP INCLUDING DRAIN PAN HEATING MEANS. George R. Pinter, Caldwell, N. J., assignor to General Electric Co., a corporation of New York.



3. A heat pump comprising a reversible refrigerant system including an indoor heat exchanger, an outdoor heat exchanger, a compressor, a refrigerant line including flow control means for controlling the flow of refrigerant from either of said heat exchangers to the other, a drain pan associated with said outdoor heat exchanger for collecting frost removed from said outdoor heat exchanger. . . .

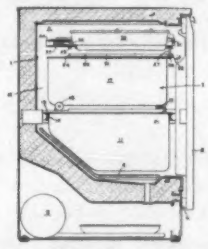
2,955,440. APPARATUS FOR MAKING, EJECTING, AND STORING ICE CUBES. Frederick L. Erickson, Chandler, and Robert W. Fink, Evansville, Ind., assignors, by mesne assignments, to General Motors Corp., Detroit.



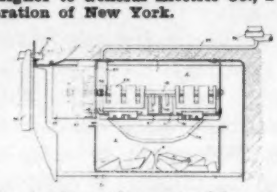
1. An ice cube ejector tray having a unitary mechanism for prying the tray loose from the evaporator, handling the tray from the front end, inverting the tray and ejecting the cubes, comprising an ice cube tray having a bottom wall integrally joined to upwardly and outwardly extending side walls, forming a tapered receptacle of substantially rectangular shape, and a grid in said tray, comprising a longitudinally extending partition, said partition being provided at each of its ends, near the top, with a securing member extending through an aperture in each of the end walls, permanently securing the grid to the tray. . . .

2,955,441. FREEZING TRAY AND ICE STORAGE CONTAINER ARRANGEMENT FOR REFRIGERATORS. John A. Dahlgren and George W. Andriot, Louisville, Ky., assignors to General Electric Co., a corporation of New York.

1. A refrigerator including a freezer compartment having an access opening at the front thereof, a shelf therein having substantially the same width as said compartment and slidably supported therein for movement between a normal position within said compartment and an extended position, a frame of a width less than said shelf, said frame being slidably supported on said shelf, an ice receptacle carried by said shelf, a freezing tray carried by said frame, said receptacle and tray being arranged so that they are in side-by-side relationship when said shelf and said frame are in their extended positions. . . .

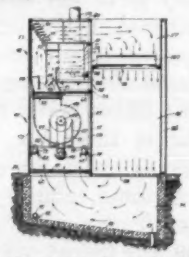


2,955,442. AUTOMATIC ICE MAKER. Henry J. Loewenthal, Louisville, Ky., assignor to General Electric Co., a corporation of New York.



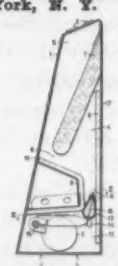
1. An ice maker comprising an ice mold, partition means dividing said mold into adjacent compartments in which water is to be frozen into ice pieces, means for heating said mold to break the bond between the surfaces of the mold and ice pieces formed therein, means pivotally mounted on said ice maker and extending into said compartments and frozen into engagement with said ice pieces for transferring the ice pieces out of said mold and over one side of said mold about an axis adjacent one side edge of said mold and bumpers positioned along said side of said mold for engaging said ice pieces and separating said pieces from said transferring means....

2,955,521. AIR SCREEN DOOR. Edwin J. Kurek, New Castle, Ind., assignor to New Castle Products, Inc., New Castle, Ind.



1. An air screen door structure having an inner air screen divided passageway defined by top, bottom and side walls, said bottom wall including a floor grating which defines the top of an air return chamber forming a part of said structure, said top wall having mounted therein an air control delivery assembly which defines the bottom of an air delivery chamber forming a part of said structure, at least one of said side walls enclosing an air moving and conditioning assembly in communication with said air return and air delivery chambers and which is formed from a pair of sectionalized prefabricated units one resting on the other in stacked relation, the lowermost of said units being formed from a frame structure which supports air moving means for drawing air from said return chamber and delivering the same upwardly into the uppermost of said units. . . .

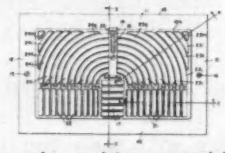
2,955,522. AIR INLET DEVICE FOR VENTILATING PLANTS. Svend Helge Kristiansen, Haestved, Denmark, assignor, by mesne assignments, to Hi-Press Air Conditioning of America, Inc., New York, N. Y.



1. An air distributing device for a ventilator supplying air at a pressure sufficient to cause circulation of room air by induction comprising a structure having a plurality of side walls, a top wall, and a bottom wall forming an enclosure, inlet duct means entering the enclosure near the bottom wall and adapted to be connected to a source of air under pressure, outlet nozzle means in the top wall to release air from the enclosure, and a sound trap disposed within the enclosure between the inlet duct means and the outlet nozzle means comprising a first partition adjacent to the inlet duct means extending transversely the length of the enclosure from a first side wall to a location near a second side wall leaving a first elongated slot extending substantially the length of the enclosure. . . .

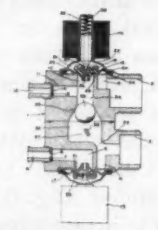
Editor's Note: Patents described here have been selected from the "Official Gazette" of the United States Patent Office. They offer only a brief summary of each invention. In some instances only the first part of the digest is presented.

2,955,525. AIR REGISTER. Edward F. Steffner, Cleveland, Ohio, assignor to The Auer Register Co., Cleveland, Ohio.



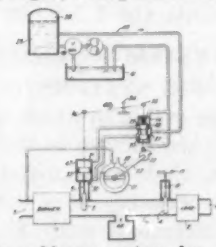
1. An air register comprising a front panel having a plurality of air discharge openings therein defined by deflector means extending angularly inwardly from the panel, said deflector means including a first group of vertically spaced, horizontally disposed deflectors extending downwardly and inwardly from said panel and located in a vertically extending central band of the panel in the lower region thereof, deflector means disposed on both sides of a vertical center line of the panel and so arranged with respect to each other as to be symmetrically arranged in mirror image relationship to each other, each of such deflector means including arcuate deflector portions of longitudinally arcuate configuration disposed in concentric relationship serially with respect to each other and having their centers of curvature disposed at a common point in the lower region of the panel. . . .

2,955,808. VALVE. Aidan M. Stone, Louisville, Ky., assignor to General Electric Co., a corporation of New York.



1. A valve comprising a body portion having first and second inlets adapted to be connected to sources of fluid under pressure and first and second outlets respectively connecting with said inlets, first control means for blocking the connection between said first inlet and said first outlet, second control means for blocking the connection between said second inlet and said second outlet, means in said body portion forming a passage connected at one end to said first inlet upstream of said first control means and connected at its other end to said second outlet downstream of said second control means, pressure responsive means positioned in said passage. . . .

2,955,743. METHOD AND APPARATUS FOR PREVENTING SURGING IN FANS, BLOWERS, AND TURBO-COMPRESSORS. Hidetoshi Kusama and Shigeru Tsuji, Tokyo-to, Japan, assignors to Ebara Mfg. Co., Ltd., Tokyo, Japan, a corporation of Japan.



1. In a blower system for controlling the supply of compressed fluid to a load, a blower for supplying said fluid under pressure to said load, an inlet channel communicating with the inlet of said blower, a discharge channel communicating with the discharge of said blower and with said load, a manually operated capacity-control valve positioned in said discharge channel adjacent said load on the inlet side thereof, a surge preventing valve positioned in said discharge channel adjacent said blower and servo-mechanism for controlling the movement of said surge preventing valve, said servo-mechanism including an inlet conduit communicating with said blower inlet channel. . . .

(To Be Continued)

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RATES for "Positions Wanted" $7.50 per insertion. Limit 50 words. 15¢ per word over 50.

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ADVERTISEMENTS set in usual classified style. Box addresses count as five words, other address by actual word count. Please send payment with order.

POSITIONS WANTED

SERVICE ENGINEER, age 42, earnestly desires to relocate in Southwest or far West. Trade school graduate. Certificate member R.S.E.S. Fifteen years' experience servicing and installing refrigeration, air conditioning, gas and oil heating. Good knowledge of electrical controls and duct system balancing. References and resume gladly furnished. BOX A6693, Air Conditioning, Heating & Refrigeration News.

POSITIONS AVAILABLE

WANTED FACTORY representatives and distributors in hot, dry climatic areas. We have developed and engineered the Bradley Precooler for use with air cooled condensers and we are manufacturing all sizes in quantity. For further information please write us immediately on your letterhead, giving references, area covered, and type of accounts serviced. AMERIKERN MANUFACTURING CORPORATION, P. O. Box 4202, Bakersfield, California.

DISTRICT SALES managers positions open for a wide choice of territories. Lines consist of full lines of furnaces, residential and commercial air conditioning, heat pumps, and an outstanding line of unitary kitchen equipment. Prefer men with experience and dealer following. Liberal compensation. If you are interested in building a secure future with an old established company and with quality merchandise competitively priced, call or write L. M. Melody, Sales Manager, Air Conditioning and Refrigeration Division, CRANE CO., Miami, Oklahoma.

ACCOUNTANT-CREDIT manager for Carrier distributor selling 100% wholesale to dealers, contractors, appliance stores in Mass. and Rhode Island. Supervise business office, inventory control, work with dealers in financing and credit problems. Salary benefits, car allowance, opportunity unlimited. Please send resume to Mr. Grenader, DUCKETT DISTRIBUTING CORP., 150 Causeway Street, Room 1124, Boston, Mass.

CARRIER DISTRIBUTOR wants wholesale man selling 100% wholesale to dealers, contractors, appliance stores in Eastern Massachusetts & Rhode Island. Experience necessary to layout air conditioning, heating, work closely with dealers. Salary plus commission, benefits, car allowance. Unlimited opportunity. Please send resume to Mr. Grenader, DUCKETT DISTRIBUTING CORP., 150 Causeway Street, Boston, Mass.

SERVICE MANAGER for Carrier distributor selling 100% wholesale to dealers, contractors, appliance stores in Eastern Massachusetts, Rhode Island. Supervise service policy, service parts, aid dealers, put on service training meetings. No service sales. Salary, benefits, car allowance. Please send resume to Mr. Grenader, DUCKETT DISTRIBUTING CORP., 150 Causeway Street, Room 1124, Boston, Mass.

MANUFACTURERS' REPRESENTATIVES. Air conditioning and heat pump manufacturer expanding to nationwide distribution desires full particulars and resume with first letter. Many choice territories available immediately. All replies confidential. Reply to BOX A6673, Air Conditioning, Heating & Refrigeration News.

REGIONAL SUPERVISOR by commercial refrigerator manufacturer with national distribution, specializing in supermarket equipment, shelving, checkouts and layout service. Supplementary items provide dealers with good bread and butter profits. Can give choice of available territories. Previous experience in selling to supermarkets, chains and wholesale grocers is main requirement for position. In return for his services, we offer top-flight equipment, a friendly and experienced home office organization, advertising support, and a remuneration plan that is second-to-none. If 1961 is your year of decision, write brief resume of experience to BOX A6690, Air Conditioning, Heating & Refrigeration News.

AIR CONDITIONING sales engineer. Leading manufacturer of complete line of heating and cooling products desires man 30 to 40 years of age for Baltimore territory to sell wholesalers and contractors and contact consulting engineers. Engineering graduate preferred with proven sales record. $8,000 plus earned commissions, expenses paid. BOX A6691, Air Conditioning, Heating & Refrigeration News.

MANUFACTURERS' REPRESENTATIVE wanted by growing refrigeration and air conditioning control manufacturer to cover wholesale and OEM trade in upstate New York. Write giving details, lines presently handled, territory, size of organization, and previous experience. Lucrative opportunity. Act at once. BOX A6694, Air Conditioning, Heating & Refrigeration News.

DISTRICT SALES representative for Wisconsin - Minnesota - Iowa territory, with well rated Mid-Western manufacturer of specialized commercial equipment, including truck refrigeration, to call on wholesalers and OEM accounts. Practical refrigeration and electrical background as well as sales experience helpful. Send resume and recent photograph to BOX A6696, Air Conditioning, Heating & Refrigeration News.

EQUIPMENT FOR SALE

REMOVAL SALE—Reachins, self contained, white exterior single door 28 cu. ft. $240.00; Two door 30 cu. ft. $300.00; Two door 42 cu. ft. $325.00; Three door 64 cu. ft. $432.00. Beverage coolers, self contained, angle type 6 ft. long, $273.00; 8 ft. long $335.00. Also available, automatic freezer reachins, open self service cases, double duty display cases, many other items at bargain prices, limited sale, act at once, call or write HOWARD REFRIGERATOR CO., INC., 4745 Worth St., Philadelphia 24, Pa., Telephone JE 3-6806.

ATTENTION REFRIGERATION Servicemen. Send for catalog listing values in refrigeration and air conditioning parts, relays, capacitors, compressors. Savings up to 50%. WALTER W. STARR, 2833 Lincoln Ave., Chicago 13, Illinois.

Prevention of Basin Freezing

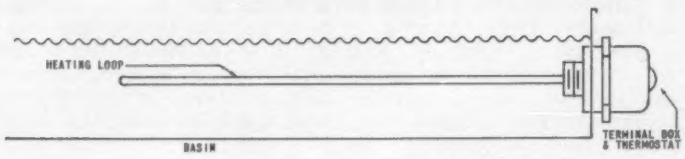

FIG. 3—Through-the-side.

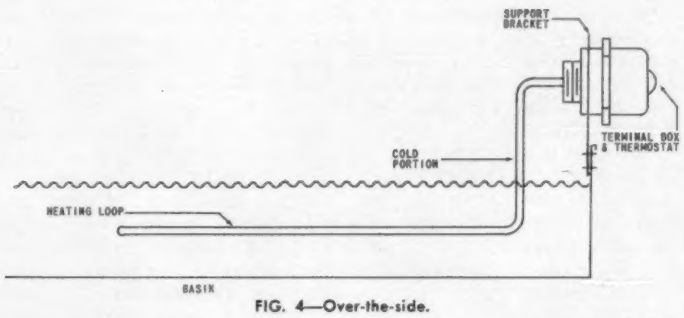

FIG. 4—Over-the-side.

FIG. 5

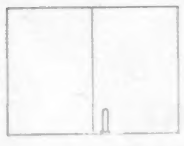

FIG. 6

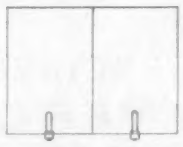

FIG. 7

FIG. 8

(3) Electric Immersion Heater Method

By Don Cousins and Ray Miller, The Marley Co.

The Electric Immersion Heater Method of cold weather basin protection is a convenient, flexible, and economical approach to the freezing problem during shutdown periods.

In general, this method is considered applicable to smaller installations, i.e., cooling towers up to 100-150 tons nominal for a single heater. It is ideal for packaged tower installations.

A suitable electric immersion heater consists of a resistance wire sealed in a looped sheath of copper, the two ends of which are brazed into a brass header. The standard heating loop is shaped like a hairpin, but is available in special shapes and in materials other than copper. The brass header attaches to the terminal housing in which the thermostat control may be mounted.

If desired, the thermostat may be remote.

Selection and Application

The objective is to provide sufficient heat to the basin so as to maintain a predetermined basin water temperature. The Cold Water Basin Heat Loss is calculated and converted into Kw by the equation:

$$\text{Heat loss, Kw} = \frac{\text{Heat loss, Btuh}}{3{,}412 \text{ Btu per kwh}}$$

Since most manufacturers rate their heating element capacities in kilowatts, it becomes a simple matter to make a catalog selection. Immersion heaters are designed to produce various heat intensities, depending upon the solution to be heated. Those designed for heating water have relatively high watt-densities and range from 45 to 55 watts per square inch.

To make an immersion heater selection, proceed as follows:

(1) Calculate cold water basin heat loss, Btuh. (See table at top of columns 4 and 5.)

(2) Convert heat loss to Kw

$$\frac{\text{Heat loss Btuh}}{3{,}412 \text{ Btu/kwh}}$$

(3) Determine power supply characteristics.

(4) Study tower dimensions and orientation and establish desired type of heater mounting and location.

(5) Refer to manufacturer's catalog.

Figs. 3 and 4 illustrate two different types of immersion heaters, the "through-the-side" type and the "over-the-side" type, respectively.

The "through-the-side" type makes a neater appearing, more permanent installation but requires that the basin be drained before removal for cleaning or maintenance purposes.

The "over-the-side" type is easily installed and can be removed and cleaned whenever necessary without draining the basin. The riser portion of the heating loop which is exposed above the water level must be designed to operate "cold" or at a low watt-density.

Cold Water Basin Heat Loss

The following table is based upon maintaining a cold water temperature of 40°. Calculation of basin side area should be based on the assumption that water depth is equal to maximum basin height. Water surface and basin bottom area may be assumed equal to over-all tower nominal plan area. The values shown are for steel basin, and are satisfactory, though conservative, for wood basins.

Ambient Air Dry Bulb Temperature °F	Heat Loss From Water Surface Btuh/sq ft Qws	Heat Loss From Basin Sides and Bottom Btuh/sq ft Qb
−10	126.5	40
−5	116.0	36
0	105.5	32
+5	94.5	28
+10	83.5	24
+15	73.0	20
+20	62.5	16
+25	52.9	12
+30	45.0	8

Total Heat Loss (Btuh) = Water Area × Qws + (Side + Bottom Area) × Qb.

Design, Orientation Considerations

(A) The heating element should be positioned such that the loop is in the horizontal plane about midway between the basin bottom and the surface of the water. This will provide uniform immersion and will preclude "surfacing."

(B) No portion of the heating section should ever be allowed to operate uncovered since it may burn out. Further, the heat generated by an exposed element could ignite adjacent inflammable materials such as tower fill.

(C) When installing a copper heater in a galvanized steel basin, care should be taken to "isolate" all connecting surfaces with non-porous, non-conducting gaskets and washers so as to avoid galvanic corrosion.

(D) Packaged towers come in a variety of shapes and the heater should be oriented such that the area around the sump is assured of ample heat, and so that the heat is distributed evenly. Heaters should be kept free of scale or any foreign material so that a free circulation of water may be maintained.

Fig. 5 is a plan view of a popular packaged tower design in which air enters from one open end only. This style is normally manufactured up to 50-60 tons nominal and its plan area can be handled by a single heater positioned at the open end near the suction. Fig. 6 illustrates a dual-celled unit similar in design to that shown in Fig. 5. A single heater may be positioned as shown, or if freezing conditions are severe, it may be desirable to use two smaller heaters located as shown in Fig. 7.

Another tower design (Fig. 8) is open at two ends with air discharging vertically. This basin may be heated either with a "one-half" capacity heater installed at each end, or with a full capacity single heater employing a longer heating loop.

The exposed make-up water piping can be protected very effectively through the use of thermostatically controlled heating cable sets. All exposed make-up line up to the valve is wrapped with cable and then a weatherproof insulation is applied. The thermostat control assembly can be set to operate at about 40° water temperature. These cable sets are available from leading electrical equipment manufacturers.

NEXT: Dry Basin—Indoor Tank Method.

Example: Select an electric immersion heater for a packaged cooling tower of 100 tons nominal capacity. Ambient air dry-bulb temperature is 5°F minimum. Basin dimensions are 9 x 12 x 1-ft maximum water depth. It is desired to maintain a cold water basin temperature of not less than 40°.

1. Calculate cold water basin heat loss, Btuh. (See table).
   Water surface area = 108 sq ft
   Basin bottom area = 108 sq ft
   Basin side area =
   (2 x 1 x 9 ft) + (2 x 1 x 12 ft) = 42 sq ft
   150 sq ft
   From Heat Loss Table (5°)
   Water surface loss = 94.5 Btuh/sq ft
   Basin sides/bottom loss = 28.0 Btuh/sq ft
   Gross heat loss = (108 x 94.5) + (150 x 28.0)
   = 10,206 + 4,200
   = 14,406 Btuh
2. Convert heat loss to Kw $\frac{14{,}406 \text{ Btuh}}{3{,}412 \text{ Btu/kwh}} = 4.22$ Kw.
3. Determine power characteristics and voltage requirements.
4. Refer to manufacturer's catalog and select required heater.

E. F. Hill R. M. Frink

Wolverine Appoints Hill and Frink

ALLEN PARK, Mich.—E. F. Hill has been promoted to director of new products and R. M. Frink has been appointed director of contract planning, a newly-created position, it was announced by P. W. Robson, president and general manager of Wolverine Tube, division of Calumet & Hecla, Inc.

The new appointments are part of a general Calumet & Hecla program of diversification and research development through Wolverine.

Hill held administrative and technical positions with Wyandotte Chemicals, Ethyl Corp., and Ford Motor Co. before joining Wolverine Tube in 1958 as market manager.

Frink joined the company in 1939 and held positions of customer relations manager, Detroit plant manager, director of operations, and director of new products.

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Cooling Showed Concrete Gains In '60 – ARI

(Continued from Page 1, Col. 2)

George S. Jones, Jr., managing director, Air-Conditioning & Refrigeration Institute, in a year-end report.

"First of all, it appears that sales of unitary air conditioners, a category which includes all central residential equipment as well as some smaller commercial and industrial jobs, but not room units, will be up at least 10% over 1959," said Jones.

"Secondly, it seems that large 'systems' installations, such as those used in big office buildings, industrial plants, stores, and similar structures, will show a gain of at least 10% over 1959.

"In the commercial and industrial refrigeration field, which shows less spectacular growth because of the fact that it has been longer established, commercial and industrial refrigeration has more than held its own in comparison with previous years. In this field, replacement equipment has become a big factor in the business, as users of older, obsolescent machinery find that it must be replaced by modernized equipment in order to compete.

Replacements Becoming Factor In Industrial, Commercial Markets

"Replacement of equipment also is growing to be a considerable factor in commercial air conditioning, since many stores, shops, theaters, and other retail establishments put in air conditioning prior to, or immediately after, World War II, and are finding it economically practicable to replace old equipment with newer, refined, modern equipment.

"In the field of large central station systems, such as are used in hotels, apartments, office buildings, stores, and other multi-room buildings, the industry feels safe in estimating that these installations will be up at least 10% in 1960 over 1959, when all the returns are in. Total 'installed value' of such systems in 1959 was more than $715 million, and it seems probable that the 1960 figure may well be in the neighborhood of $800 million."

Central Residential System 'Breakthrough'

Among the most significant news in 1960 in the air conditioning and refrigeration field, as Jones sees it, was the "breakthrough" observed in the installation of central residential equipment by builders of new homes. While in previous years there has been a considerable volume of equipment installed in homes, in 1960, said Jones, the builders of low-cost development homes began including it as "standard equipment."

In previous years air conditioning had been standard equipment in higher-priced homes, and had been optional to the buyers of low and medium-priced homes. Reports received from all sections of the country—north and south—indicate that buyers are demanding central residential air conditioning; hence the noticeable trend.

He cited as an outstanding example of low and medium-priced homes complete with air conditioning the Belair development, between Washington and Baltimore. Here the builders of Levittown are planning construction of 4,500 homes—some of them priced under $15,000—all of them equipped with central air conditioning.

Certification Program

"Of great importance—to the purchasers of these homes as well as to the industry—is the fact that the Unitary Air-Conditioner Certification Program, sponsored and directed by the ARI, has been impressed on dealers and contractors to the extent that virtually all unitary equipment now being installed in homes—all of it in the Levitt homes, incidentally—bears the ARI Seal of Certification," said ARI's managing director.

"The manufacturers of more than 90% of the total U. S. output of unitary air conditioning in capacity, are participants in the program. Early in 1960, the U. S. Air Force issued a directive requiring that all unitary equipment purchases for Air Force installations should bear the ARI Seal, and it is expected that other government agencies, recognizing the assurance provided by the program, may take similar action.

"A number of other certification programs are under consideration by ARI Product-Sections, and may be put into effect in 1961. These include such end-products as water coolers and heat pumps, and a number of components of both air conditioning and refrigeration systems.

"Automotive air conditioning is becoming a bigger factor each year, as the manufacturers of cars of all sizes produce an increasingly largly number of models factory-equipped with air conditioning and the size of the industry which manufactures units for so-called 'field-installation' continues to increase.

"The Society of Automotive Engineers has estimated that by 1962 one in nine cars will be air conditioned, and 25% of all cars produced within five years will be factory-equipped with air conditioning.

"In the field of commercial and industrial refrigeration, the long-established phase of mechanical cooling, 1960 has been, as indicated above, a very good year for most of the many products covered in this broad category, and forecasts of increased marketing facilities for foods, more than three-fourths of which are cooled at some point along the route from producer to consumer, as well as building outlook and developments in scientific and defense applications, all point to a further step-up in utilization of the equipment which is necessary to the daily movement of the nation's food supply, medical, and scientific welfare, and defense operations.

"Military uses for specialized cooling equipment have shown great growth in the past few years, as highly-intricate electronic processes, weapons systems, test facilities, supersonic aircraft, and nuclear-power applications have become an ever-greater part of the nation's defense equipment. As these developments, and those which grow out of them, progress even further, the essentiality of mechanical refrigeration to their production and operation will become more apparent and vital."

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